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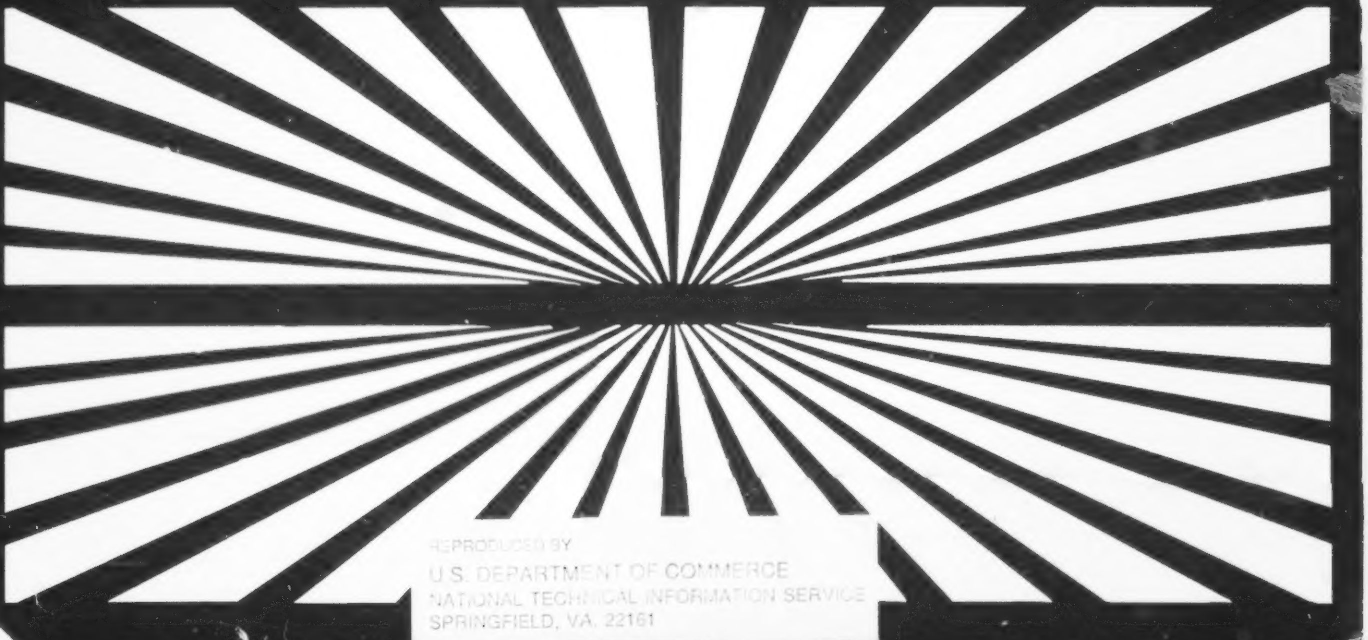

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This manual is a step towards increasing the involvement of all affected parties in the RCRA program because it provides a mechanism through which such parties can learn more about the program. Although the manual was designed for EPA and State staff, we hope that it will be useful to all individuals who wish to better understand RCRA. This manual is written for those unfamiliar with the RCRA program, or parts thereof, therefore complex details were either simplified or excluded for the sake of clarity. Each chapter of this manual includes an overview of what is to be covered, illustrations and figures highlighting the text, and a summary of the key points presented.

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This document has been reviewed by the U.S. Environmental Protection Agency and approved for publication. Any trade names or commercial products are only examples and are not endorsed or recommended by the U.S. Environmental Protection Agency.

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A NOTE TO THE READER

By Marcia E. Williams -- Director, EPA Office of Solid Waste

Since its inception, the Resource Conservation and Recovery Act (RCRA) has evolved from a relatively small program dealing primarily with the management of non-hazardous solid waste into a large, complex program that focuses mainly on hazardous solid waste. The regulated community that comes under RCRA's jurisdiction consists of thousands of generators, transporters, and treatment, storage, or disposal facilities spread throughout the nation.

With the signing of the Hazardous and Solid Waste Amendments on November 8, 1984, the requirements and the coverage of the RCRA program greatly expanded. Not only were additional statutory and regulatory burdens placed on already existing parts of the program, but also an entirely new Subtitle of the Act was created to address the problem of underground storage tanks that may be leaking hazardous substances or petroleum products into the environment.

As the RCRA program has grown, so too has the Agency's ability to implement it. Nevertheless, we are still a long way from where we want and need to be. Just when we begin to understand how to approach and resolve a particular problem another one takes its place.

In order to improve the RCRA program and make it run more smoothly, the Office of Solid Waste (OSW) has taken the initiative in many areas. For example, we are now working on simplifying the plethora of directives coming from the solid waste program, and providing a clear rationale to the regulated community and the public for the approaches taken by OSW in seeking to solve environmental and human health problems, whether through regulations, guidance, or technology transfer.

The continued success of the RCRA program rests on the involvement of all affected parties. This manual is a step towards increasing such involvement because it provides a mechanism through which such parties can learn more about the program. Although the manual was designed for EPA and State staff, we hope that it will be useful to all individuals who wish to better understand RCRA.

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PREFACE

This manual was developed by the Environmental Protection Agency (EPA), Office of Solid Waste, to meet the need for introductory information on the solid waste management program established under the Resource Conservation and Recovery Act (RCRA). Because there is little general information available on the RCRA program, a new EPA employee, or an experienced employee unfamiliar with a certain part of it, is left to understand the program by reading and re-reading the Act, regulations, policy, or guidance and/or learning on the job. This manual is not meant to replace these methods of understanding; rather it is intended to be used in conjunction with them to give the reader a basic introduction to RCRA that can serve as a foundation upon which to build. To accomplish this, the manual presents a clear and concise overview of the RCRA program, the extent of its coverage, and the way it works.

At the time this manual was printed, the RCRA program was going through some major changes. The Hazardous and Solid Waste Amendments (HSWA), signed by President Reagan on November 8, 1984, were still being interpreted by EPA. Therefore, this manual fully describes those parts of the RCRA program in existence prior to HSWA, as well as those HSWA provisions that were transformed into regulatory requirements before the manual was completed. In the case of the remaining HSWA provisions, the manual summarizes the amendments' statutory language and, in some instances, provides a description of their intent. As regulations are written for more of HSWA this manual will be updated to reflect the changes.

Because this manual is only an information source about the RCRA program it does not attempt to impart the skills to perform job duties such as writing a permit. Furthermore, the manual is written for those unfamiliar with the RCRA program, or parts thereof, therefore complex details were either simplified or excluded for the sake of clarity. Each chapter of this manual includes an overview of what is to be covered, illustrations and figures highlighting the text, and a summary of the key points presented.

SECTION I

INTRODUCTION TO THE RESOURCE CONSERVATION AND RECOVERY ACT

- OVERVIEW
- RCRA: WHAT IT IS
    - THE ACT
    - REGULATIONS
    - GUIDANCE AND POLICY
- RCRA: HOW IT WORKS
    - SUBTITLE D -- SOLID WASTE
    - SUBTITLE C -- HAZARDOUS WASTE
    - SUBTITLE I -- UNDERGROUND STORAGE TANKS
- RCRA TODAY
- WHO IS INVOLVED IN RCRA?
- OUTLINE OF THE MANUAL
- SUMMARY

SECTION I INTRODUCTION TO THE RESOURCE CONSERVATION AND RECOVERY ACT

OVERVIEW

RCRA

The Resource Conservation and Recovery Act (RCRA), an amendment to the Solid Waste Disposal Act, was passed in 1976 to address a problem of enormous magnitude -- how to safely dispose of the huge volumes of municipal and industrial solid waste generated nationwide. It is a problem with roots that go back well beyond 1976.

There was a time when the amount of waste produced in the United States was small and its impact on the environment relatively minor -- a river supposedly purified itself every 10 miles. Times changed. With the industrial revolution in the latter part of the 19th century the country began to experience growth, the likes of which had never been seen before. New products were developed, and the consumer was offered an ever-expanding array of material goods.

This growth continued through the early 20th century and took off after World War II when the Nation's industrial base, strengthened by war, turned its energy toward domestic production. The results of growth, however, were not all positive. While the country produced more goods, it also generated more waste, both hazardous and non-hazardous. For example, at the end of World War II, United States industry was generating roughly 500,000 metric tonnes of hazardous waste per year. Compared with today's standards, this amount is small indeed. A national survey conducted by EPA in 1981 estimates that 264 million metric tonnes of hazardous waste were generated nationwide.

Unfortunately this phenomenal growth in the production of waste was not mirrored by growth in the field of waste management. Much of the waste produced made its way into the environment where it poses a serious threat to ecological systems and public health.

It became clear, in the mid-1970's, to Congress and the nation alike, that action had to be taken to assure that solid wastes are managed properly. This action resulted in the establishment of RCRA. The goals set by RCRA are:

- To protect human health and the environment
- To reduce waste and conserve energy and natural resources
- To reduce or eliminate the generation of hazardous waste as expeditiously as possible.

RCRA GOALS

- **To protect human health and the environment**
- **To reduce waste and conserve energy and natural resources**
- **To reduce or eliminate the generation of hazardous waste as expeditiously as possible.**

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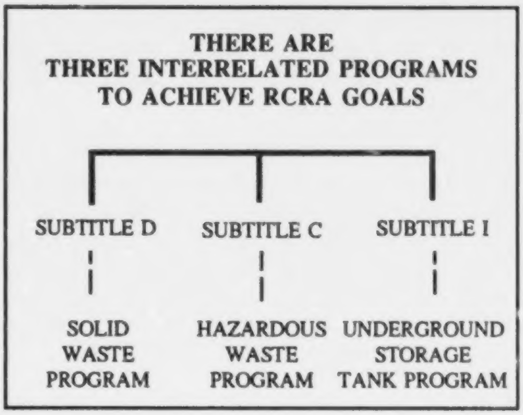
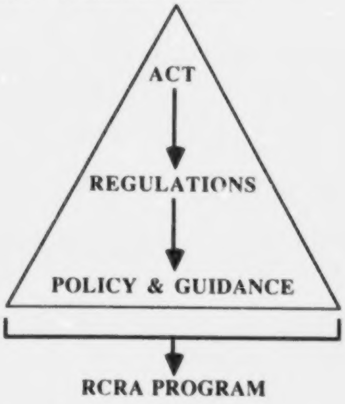


To achieve these goals, three distinct yet interrelated programs were developed under RCRA. The first program, outlined under Subtitle D of RCRA, encourages States to develop comprehensive plans for the management of solid wastes, primarily non-hazardous, e.g., household waste. The second program, outlined under Subtitle C of the Act, is the one most people think about when RCRA is mentioned. It establishes a system for controlling hazardous waste from the time it is generated until its ultimate disposal, in effect, from "cradle to grave." The last of the three programs established under RCRA is also the newest. This program, outlined under Subtitle I of the Act, regulates certain underground storage tanks. It establishes performance standards for new tanks and requires leak detection, prevention and correction at underground tank sites.

It is important to note that although RCRA creates a framework for the proper management of hazardous and non-hazardous solid waste, it does not address the problems of hazardous waste encountered at inactive or abandoned sites or those resulting from spills that require emergency response. They are taken care of by a different act, the Comprehensive Environmental Response, Compensation, and Liability Act, better known as Superfund.

This section provides an overview of RCRA, including the Act, regulations, guidance, and policy and, in addition, discusses the three programs that make up RCRA and the interrelationships among them. Finally, the section details where RCRA is today, who is involved, and outlines the remainder of this manual.

RCRA: WHAT IT IS



Any discussion of RCRA must begin with a definition of terms. Although the term "RCRA" is the acronym for the Resource Conservation and Recovery Act, it is often used to refer to the overall program resulting from the Act. To avoid confusion, in this manual, the term "Act " refers to the statute and the term "RCRA" to the whole program. In addition, a distinction is made between terms used to describe provisions of the statute and regulations. When referring to the statutory requirements they are either stated as such or the term "Act" is used. When discussing regulations developed by EPA, they are referred to as either standards, regulations, or regulatory requirements. Thus, if X was in the statute but not the regulations, it would be considered a requirement of the Act. Alternatively, if Y was in the regulations, it could be referred to as either a regulation or a regulatory requirement.

The RCRA program is made up of several pieces, including the Act, regulations, guidance and policy. Each of these is discussed below.

THE ACT

What we commonly know as the Act is really an amendment to the first piece of Federal solid waste legislation. In 1965, the Solid Waste Disposal Act was passed with the primary purpose of improving solid waste disposal methods. It was amended in 1970 by the Resource Recovery Act, and again in 1976 by the Resource Conservation and Recovery Act (RCRA). The changes embodied in RCRA remodeled our nation's solid waste management system and greatly expanded provisions pertaining to the management of hazardous waste.

Outline of the Act

Subtitle	Provisions
A	General Provisions
B	Office of Solid Waste; Authorities of the Administrator
C	Hazardous Waste Management
D	State or Regional Solid Waste Plans
E	Duties of the Secretary of Commerce in Resource and Recovery
F	Federal Responsibilities
G	Miscellaneous Provisions
H	Research, Development, Demonstration, and Information
I	Regulation of Underground Storage Tanks

The Act is continuously evolving as Congress amends it to reflect changing needs. It has been amended twice since 1976, once in 1980 and most recently on November 8, 1984. The 1984 amendments, called The Hazardous and Solid Waste Amendments (HSWA), significantly expand both the scope and detailed requirements of RCRA. Because RCRA will be changing due to HSWA, provisions resulting from the amendments are emphasized throughout the manual.

The Act is a law which describes the kind of waste management program that Congress wants to establish. This description is in very broad terms, e.g., develop and promulgate criteria for identifying the characteristics of hazardous waste. The Act also provides the Administrator of EPA (or his representative) with the authority necessary to carry out the intent of the Act, e.g., authority to conduct inspections.

The structure of the Act is straightforward. It is currently divided into nine subtitles, A through I. Subtitles A, B, E, F, G, and H outline, respectively, general provisions, authorities of the Administrator, duties of the Secretary of Commerce, Federal responsibilities, miscellaneous provisions, and research, development, demonstration, and information. Subtitles C, D, and I lay out the framework for the three programs that make up RCRA: the hazardous waste management program, the solid waste program and the underground storage tank program, respectively.

REGULATIONS

The Act includes a Congressional mandate for the development of regulations which are the legal mechanism that spell out how a statute's broad policy directives are to be carried out. EPA was thus required to develop a comprehensive set of regulations to implement the three RCRA programs. Many RCRA regulations have been developed to date, covering a range of topics, from guidelines for State solid waste plans to the framework for the hazardous waste permit program.

federal register
Monday
July 15, 1985
Part II
Environmental
Protection Agency
40 CFR Parts 260, 261, 262, 264, 265, 266, 270, 271, and 280
Hazardous Waste Management
System; Final Rule

RCRA regulations are continuously being developed and published according to an established process. When a regulation is developed it is published in a document called the Federal Register. It is usually first published as a proposed regulation, allowing the public to comment on it for a period of time, normally 60 days. Included with the text of the proposed regulations is a discussion of the Agency's rationale for proposing them (the preamble). Following the comment period, EPA revises the proposed regulations and finalizes them through publication in the Federal Register. Annually, the regulations are compiled and placed in the Code of Federal Regulations (CFR) according to a highly structured format. This latter process is called codification.

code of
federal regulations
Protection of
Environment
40

Most of RCRA has been codified in this manner and can be found in Volume 40 of the CFR, Chapter I, Subchapter I - Solid Wastes, Parts 240-271. These regulations are often cited as 40 CFR, with the Part listed afterward, e.g., 40 CFR Part 264. 40 CFR does not currently contain the regulations for the underground storage tank program and some other HSWA mandated regulatory changes because they have yet to be developed.

Although the relationship between an Act and its regulations, discussed above, is the norm, the relationship between HSWA and its regulations differs. HSWA is unusual in that Congress, for the first time, placed explicit requirements in the statute in addition to instructing EPA in general language to develop regulations. These requirements are so specific that EPA incorporated them directly into the regulations. HSWA is all the more significant because of the ambitious schedules that Congress established. Many of the amendments' provisions are already in place; others go into effect within very short time frames. Another unique aspect of HSWA is that it establishes "hammer" provisions, which are statutory requirements that go into effect automatically if EPA fails to issue regulations by certain dates.

GUIDANCE AND POLICY

The interpretation of statutory language does not end with the codification of regulations. EPA further clarifies its regulations through the issuance of guidance documents and policy.

GUIDANCE = HOW TO

POLICY = MUST DO

Guidance documents are issued primarily to elaborate and provide direction on the implementation of regulations. They essentially explain how to do something. For example, the regulations in 40 CFR Part 270 detail what is required in a permit for a hazardous waste management facility, and the guidance for this Part gives instructions on how to evaluate a permit to see if everything is included. Guidance documents are also used to provide the Agency's interpretation of the Act.

Policy statements, on the other hand, specify operating procedures that must be followed. They are a mechanism used by program offices to outline the manner in which pieces of the program are to be carried out. For example, the enforcement office may issue a policy outlining what enforcement action must be taken if a ground-water violation is found. In most cases policy statements are addressed to the staff working on implementation.

Many guidance and policy documents have been developed to aid in implementing the RCRA program. Indeed, there are so many that describing them is beyond the scope of this manual. However, to find out what documents are available, one may use the Office of Solid Waste's Directives System. This system, developed in November of 1985, and updated periodically, lists all RCRA-related policy, guidance and memoranda and where they can be obtained. These lists are available from each region's Policy Directives Coordinator.

RCRA: HOW IT WORKS

The three programs established under RCRA -- solid waste, hazardous waste, and underground storage tanks -- are described in detail in ensuing chapters. However, to provide an overall perspective of how RCRA works, each of these programs and their interrelationships is briefly summarized here. In this manual, the solid waste program (Subtitle D) is discussed before the hazardous waste program (Subtitle C). Although this is alphabetically out of order, the structure is designed to benefit the reader. The Subtitle D Chapter includes the definition of solid waste which must be understood before the Subtitle C program can be explained.

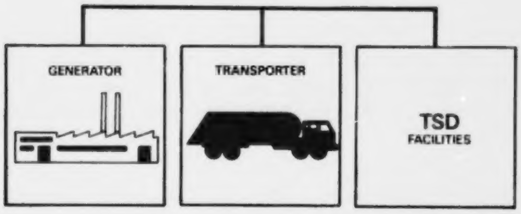
SUBTITLE D - SOLID WASTE

Subtitle D of the Act establishes a voluntary program through which participating States receive Federal financial and technical support to develop and implement solid waste management plans. These plans are, among other things, intended to promote recycling of solid wastes, and require the closing or upgrading of all environmentally unsound dumps. EPA's role in the Subtitle D program has been to establish regulations for States to follow in developing and implementing their plans, in approving those State plans that comply with such regulations, and in providing grant money for implementing the plans. EPA has also issued minimum technical standards that all solid waste disposal facilities must meet when disposing of solid wastes.

SUBTITLE C - HAZARDOUS WASTE

Subtitle C of the Act establishes a program to manage hazardous wastes from cradle to grave. The objective of the Subtitle C program is to assure that hazardous waste is handled in a manner that protects human health and the environment. To this end, there are Subtitle C regulations regarding the generation, transportation, and treatment, storage, or disposal of hazardous wastes. In practical terms, this means regulating a large number of hazardous waste handlers. Indeed, as of October 1985, EPA had on record almost 56,000 major generators, 12,500 transporters, and approximately 4,800 treatment, storage, or disposal facilities handling hazardous wastes.

The Subtitle C Program Regulates



The Subtitle C program has resulted in perhaps the most comprehensive regulations EPA has ever developed. They first identify those solid wastes that are "hazardous" and then establish various administrative requirements for the three categories of hazardous waste handlers: generators, transporters, and owners or operators of treatment, storage, and disposal facilities (TSDs). In addition, the Subtitle C regulations set technical standards for the design and safe operation of TSDs. These standards are designed to minimize the release of hazardous waste into the environment. Furthermore, the regulations for TSDs serve as the basis for developing and issuing the permits that each facility is required to have. Issuing permits is essential to making the Subtitle C regulatory program work, since it is through the permitting process that EPA or a State actually applies the technical standards to facilities.

One of the prime differences between Subtitle C and Subtitle D is the type of waste they regulate. Subtitle C regulates only hazardous waste, a subset of solid waste, whereas the Subtitle D program primarily manages non-hazardous solid waste. Subtitle C also differs from Subtitle D in that it is a regulatory program rather than a voluntary State grant program. Furthermore, Subtitle C was initially established as a Federally run program to be delegated to States, unlike Subtitle D, which began as a State program.

SUBTITLE I - UNDERGROUND STORAGE TANKS

Subtitle I of the Act is a new program created by HSWA to regulate petroleum products and hazardous substances (as defined under Superfund) stored in underground tanks. This program is similar in many ways to the hazardous waste program in that it is designed as a regulatory program that may be delegated to States. Under this program, EPA must establish regulations laying out performance standards for new tanks as well as standards covering leak detection, leak prevention, and corrective action for both new and existing underground storage tanks. The objective of this Subtitle is to prevent leakage from tanks that could pollute the environment, especially ground water.

RCRA TODAY

When RCRA was first passed in 1976, much work needed to be done to begin implementing the program. Since then, both the Subtitle C and D programs have been established and EPA and authorized States are concentrating on implementing the Subtitle C program by issuing permits to TSDs. Also ongoing is the delegation of the RCRA program to individual States. In addition to implementing the existing RCRA program, EPA is currently working on interpreting HSWA, writing regulations in light of them and implementing immediate statutory requirements. As the RCRA program matures, activities will shift from implementation to compliance monitoring and enforcement.

Due to the past several years' efforts, we have today a national waste management program. As a result, waste reduction and recycling are occurring, waste management methods have improved, and natural resources are being conserved. Improper waste generation and disposal are becoming less of a problem.

WHO IS INVOLVED IN RCRA?

The RCRA program touches and thus involves a myriad of people and organizations. However, the roles of those involved vary. Congress writes or amends the Act which, when signed by the President, becomes law. After the Office of Solid Waste and Emergency Response (OSWER) at EPA develops regulations, the RCRA program is implemented by both headquarters (OSWER) and regional EPA staff. The States may, in turn, apply to EPA for the authority to run all or part of the RCRA program. In doing so, the States may adopt the Federal program outright or develop their own program that is more stringent or broader in scope than the one applied nationally.

The regulated community is involved with the RCRA program because it must comply with the law and its regulations. Finally, the general public participates by providing input and comments at almost every stage of the program's development and implementation.

OUTLINE OF THE MANUAL

This manual describes in detail the three RCRA programs briefly discussed in this introduction. In addition, a chapter reviewing the interrelationships between RCRA's Subtitle C program and other environmental statutes, primarily Superfund, is included. The remainder of the manual consists of:

Section II: Subtitle D of RCRA - Managing Solid Waste

Section III: Subtitle C of RCRA - Managing Hazardous Waste

  Chapter 1 -- What is Hazardous Waste?
  Chapter 2 -- Regulations Applicable to Generators of Hazardous Waste
  Chapter 3 -- Regulations Applicable to Transporters of Hazardous Waste
  Chapter 4 -- Regulations Applicable to Treatment, Storage, and Disposal Facilities
  Chapter 5 -- Permitting
  Chapter 6 -- Enforcement
  Chapter 7 -- State Authorization
  Chapter 8 -- Public Participation
  Chapter 9 -- RCRA and its Relationship to Superfund and Other Acts

Section IV: Subtitle I of RCRA - Managing Underground Storage Tanks.

SUMMARY

The Resource Conservation and Recovery Act (RCRA) was passed in 1976, as an amendment to the Solid Waste Disposal Act of 1965, to ensure that solid wastes are managed in an environmentally sound manner. The broad goals set by RCRA are to:

- Protect human health and the environment
- Reduce waste and conserve energy and natural resources
- Reduce or eliminate the generation of hazardous waste as expeditiously as possible.

To achieve these goals, three distinct yet interrelated programs exist under RCRA:

- Subtitle D -- A Federal program to promote and encourage the environmentally sound disposal of hazardous waste. It includes minimum Federal technical standards, guidelines for State solid waste plans and financial assistance to States.
- Subtitle C -- Establishes a management system that regulates hazardous waste from the time it is generated until its ultimate disposal, in effect from "cradle to grave"
- Subtitle I -- A new program, established by the Hazardous and Solid Waste Amendments of 1984 (HSWA), that regulates petroleum products and hazardous substances (as defined under Superfund) stored in underground tanks.

There are several pieces to RCRA:

- Act -- Describes in statutory language the kind of waste management program that Congress wants to establish. The Act also provides the Administrator of EPA (or his designee) with the authority to implement the Act.
- Regulations -- Mandated by Congress and developed by EPA. Regulations are the legal mechanism that spell out how the Act's directives are to be carried out. Regulations are published in the Federal Register and codifed in the Code of Federal Regulations.
- Guidance -- Developed and issued by EPA (or the the States) to provide instructions on how to implement parts of either the Act or regulations.
- Policy -- Statements developed by EPA (or the States) outlining a position on a topic or giving instructions on how a procedure must be conducted.

RCRA is currently undergoing changes as a result of HSWA. These amendments significantly expand both the scope (e.g., the creation of Subtitle I) and detailed requirements of the Act. Some of these requirements are so specific that EPA incorporated them directly into the regulations.

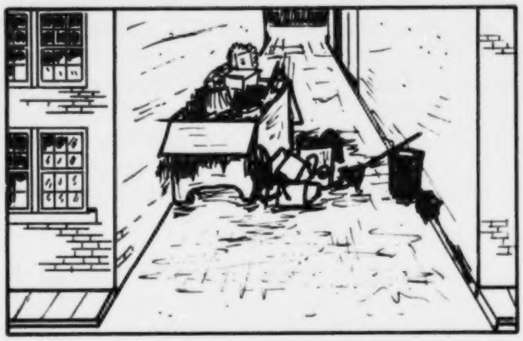
SECTION II

SUBTITLE D OF RCRA -- MANAGING SOLID WASTE

- **OVERVIEW**
- **DEFINITION OF *SOLID WASTE***
    - **EXCEPTIONS TO THE DEFINITION OF *SOLID WASTE***
- **MANAGEMENT OF SOLID WASTE UNDER SUBTITLE D**
    - **STATE PLAN REGULATIONS**
    - **MINIMUM TECHNICAL STANDARDS AND OPEN DUMP CRITERIA**
- **EXEMPTIONS FROM THE SUBTITLE D CRITERIA**
- **HSWA's EFFECT ON THE SUBTITLE D CRITERIA**
- **SUMMARY**

SECTION II SUBTITLE D OF RCRA - MANAGING SOLID WASTE

OVERVIEW



The history of solid waste management at the Federal level is largely a reflection of post-World War II prosperity. After the war, the nation's rejuvenated industrial base shifted from armaments to the production of consumer goods. Many of these goods were convenience items, built to be disposed of. The throw-away society was born. A by-product of the production and consumption of these consumer goods was an ever-increasing amount of solid waste.

By 1965 it had become apparent that the nation's ability to manage solid waste was severely lacking. As a result, Congress passed the Solid Waste Disposal Act of 1965. The Act established grant programs to support the application of improved disposal methods and the development of solid waste disposal plans by States and/or interstate agencies. Subsequent amendments to the Solid Waste Disposal Act -- the Resource Recovery Act of 1970 and RCRA in 1976 -- raised solid waste management to a higher level of sophistication. The Subtitle D program under RCRA, in particular, overhauled the nation's solid waste management scheme. It is important to note that the term "solid waste" used in respect to the Subtitle D program refers almost exclusively to non-hazardous solid waste. The bulk of the statutory and regulatory requirements concerning the handling and disposition of hazardous solid waste falls under the Subtitle C program of RCRA, which is covered in Section III.

The primary goals of the Subtitle D program (Sections 4001-4010 of the Act) are to encourage solid waste management practices that promote environmentally sound disposal methods, maximize the reuse of recoverable resources, and foster resource conservation. To achieve these goals, EPA established both technical standards for solid waste management facilities and a program under which participating States may develop and implement solid waste management plans.

The standards, commonly called the Subtitle D Criteria, set out minimum technical requirements for environmentally acceptable facilities (States may establish comparable or more stringent standards). These requirements are mandatory for solid waste disposal facilities. Therefore, facilities that do not comply with the standards must come into compliance or close.

Subtitle D Program Goals:

- **Encourage environmentally sound solid waste management practices**
- **Maximize the re-use of recoverable resources**
- **Foster resource conservation.**

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Two Main Parts of the Subtitle D Program:

- **Technical standards for solid waste disposal facilities**
- **Solid waste management grant program for States (voluntary).**

Unlike the technical standards, the solid waste management plan program is voluntary. Those States that develop and implement EPA-approved plans are eligible for Federal technical and financial assistance. Each plan essentially outlines steps the State will take to ensure that the solid waste within its borders is managed in an environmentally sound manner, and resources are conserved and recovered where possible. Key components of State plans involve using the Subtitle D Criteria to identify inappropriately managed facilities, termed "open dumps," which must be closed or upgraded, and developing a regulatory scheme designed to ensure that active facilities operate properly. As of October 10, 1985, 24 states had in place fully approved plans.

SANITATION
DEPT.

EPA's role with respect to State plans is limited to administering a grant program, setting the minimum regulatory requirements that States must follow in designing their plans, and approving plans that comply with these requirements. Thus, the main responsibility for developing and implementing the plan lies with each State.

During the late 1970's and through 1980, there was a fair amount of EPA and State activity in the area of solid waste management, e.g., recycling programs. Over the past 5 years, however, activities under Subtitle D have declined. This decline is due primarily to the fact that no Federal funds for Subtitle D have been made available since 1981. The reason for this is that the focus of Federal funding has shifted to the Subtitle C program. Despite the lack of Federal funding, a few States continue to develop and implement solid waste management plans.

This section presents an outline of the Subtitle D program. In doing so it defines the term "solid waste," describes how State plans are developed, approved, and implemented, reviews the Subtitle D Criteria, lists exemptions from the Criteria, and reviews HSWA's effect on Subtitle D.

DEFINITION OF *SOLID WASTE*

The term "solid waste" is very broad, including not only the traditional non-hazardous solid wastes, such as municipal garbage, but also hazardous solid wastes. The Act defines solid waste as:

- Garbage, e.g., milk cartons and coffee grounds
- Refuse, e.g., metal scrap, wall board and empty containers

- Sludges from a waste treatment plant, water supply treatment plant or pollution control facility, e.g., scrubber sludges
- Other discarded material, including solid, semisolid, liquid, or contained gaseous material resulting from industrial, commercial, mining, agricultural, and community activities, e.g., boiler slag, fly ash.

HOUSEHOLD GARBAGE

COMMERCIAL REFUSE

SLUDGE

In understanding the RCRA definition of solid waste it is important to keep in mind that all solid waste is not solid. As noted above, many solid wastes are liquid, while others are semisolid or gaseous. Furthermore, although the definition of solid waste includes hazardous waste, the Subtitle D program is concerned primarily with non-hazardous wastes. Certain hazardous wastes excluded from regulation under Subtitle C are covered by Subtitle D, e.g., small quantities of hazardous waste coming from households and generators.

EXCEPTIONS TO THE DEFINITION OF *SOLID WASTE*

If the definition was limited to that given above, just about every type of waste produced by man would qualify as solid waste. This, however, is not the case. There are a number of exceptions to the definition given above. Specifically, the following materials are not considered solid waste under RCRA:

- Domestic sewage (defined as untreated sanitary wastes that pass through a sewer system)
- Industrial wastewater discharges regulated under the Clean Water Act
- Irrigation return flows
- Nuclear materials, or by-products, as defined by the Atomic Energy Act of 1954
- Mining materials that are not removed from the ground during the extraction process.

MANAGEMENT OF SOLID WASTE UNDER SUBTITLE D

The Subtitle D program establishes a solid waste management framework that has two main components:

1) Regulations applicable to the development and implementation of State plans

2) Criteria used as minimum technical standards for solid waste disposal facilities and to identify open dumps.

STATE PLAN REGULATIONS

STATE OF . . .
SOLID WASTE MANAGEMENT PLAN

The regulations for State plans (40 CFR Part 256) are a key component of the Subtitle D program. The purpose of these regulations is to assist States in developing and implementing EPA-approved solid waste management plans. Such plans serve to ensure environmentally sound solid waste management and disposal, resource conservation, and maximum utilization of valuable resources. The regulations achieve this by outlining the minimum requirements for State plans and detailing how these plans are approved by EPA. Although all States must comply with the same regulatory requirements issued under Subtitle D, the plans they develop are not identical. Each plan reflects the State's unique solid waste management needs.

In developing a solid waste management plan the State must go through a number of steps. The first of these, detailed in 40 CFR Part 255, requires the governor to select or establish an agency to develop the State plan. After the responsible agency is identified, actual drafting of the plan begins. The content of the plan is not a matter of State discretion. To gain EPA approval, the plan must comply with the minimum regulatory requirements cited in 40 CFR Part 256. These requirements include:

- Identifying the responsibilities of State, local, and regional authorities in implementing the plan
- Describing a regulatory scheme that prohibits the establishment of new open dumps, provides for the closing or upgrading of all open dumps, and establishes any State regulatory powers required for implementation of the plan
- Ensuring that no State or local government within the State be prohibited from:
    - Establishing long-term contracts for the supply of solid waste to resource recovery facilities or for the operation of such facilities
    - Securing long-term markets for material and energy recovered from resource recovery facilities
    - Conserving materials or energy by reducing waste volume

- Detailing the combination of practices that are necessary to use or dispose of solid waste in an environmentally sound manner.

Once the plan has been developed and adopted by the State it is submitted to EPA for approval. Within 6 months from the date of submittal, the Administrator of EPA must either approve or disapprove of the plan. Approval is granted if the Administrator finds that the plan fulfills all of the minimum requirements set out in the regulations. Gaining this approval is especially important because without it the State is ineligible for Federal financial or technical assistance.

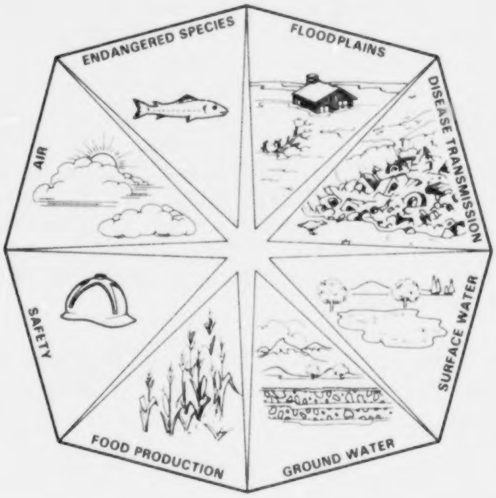
MINIMUM TECHNICAL STANDARDS AND OPEN DUMP CRITERIA

The final component of the Subtitle D program is the "Criteria for Classification of Solid Waste Disposal Facilities and Practices," commonly referred to as the "Subtitle D Criteria" (40 CFR Part 257). The Criteria are used as a:

- Set of minimum technical standards with which all Federal and non-Federal solid waste disposal facilities must comply
- Means of determining if a solid waste disposal facility is an open dump.

The criteria cover eight areas:

- Floodplains
- Endangered species
- Surface water
- Ground water
- Waste application limits for land used in the production of food chain crops
- Disease transmission
- Air
- Safety.



Areas Covered by the Subtitle D Criteria

Under each of these areas specific requirements are set. For example, 40 CFR Section 257.3-2 (a) and (b) states that:

> Facilities or practices shall not cause or contribute to the taking of any endangered or threatened species of plants, fish, or wildlife... (or) result in the destruction or adverse modification of the critical habitat of endangered or threatened species.

Minimum Technical Standards

The Subtitle D Criteria serve as minimum technical standards for solid waste disposal facilities. Facilities must comply with the Criteria to ensure that ongoing operations are protective of human health and the environment. If they fail to do so the facility is classified as an open dump and must close or upgrade its operations. It is important to note that the Criteria apply to all facilities, regardless of whether or not the State in which they are located has an approved management plan. Furthermore, States have the option of developing Criteria more stringent than the Federal ones.

Compliance with the Criteria and, thus, the ban on dumping, can be enforced through citizen suits (Section 7002 of the Act) or by the State. Prior to HSWA, EPA had no authority to take legal action against parties that did not comply with the Criteria. The new enforcement authority provided by HSWA is discussed below.

Open Dump Criteria

OPEN DUMP

In addition to serving as minimum technical standards, the Criteria are used to identify open dumps. As mentioned above, an open dump is defined as a disposal facility which does not comply with one or more of the Subtitle D Criteria. Using the Criteria as a benchmark, each State must evaluate the solid waste disposal facilities within its borders to determine which are open dumps and, therefore, need to be closed or upgraded. For each facility that fails to comply with one or more of the Criteria, the State completes an Open Dump Inventory Report form that is sent to the Bureau of the Census. At the end of each fiscal year the Bureau compiles all of the report forms and sends them to EPA, where they are summarized and published as the Inventory of Open Dumps. The Inventory has been published annually from 1981 to 1985.

EXEMPTIONS FROM THE SUBTITLE D CRITERIA

Certain solid waste disposal facilities or practices are exempted from having to comply with the Subtitle D Criteria, including:

- Use of agricultural wastes as fertilizers or soil conditioners
- Land application of domestic sewage
- Hazardous waste disposal facilities regulated under Subtitle C of RCRA
- Industrial discharges that are point sources subject to permits under Section 402 of the Clean Water Act.

HSWA's EFFECT ON THE SUBTITLE D CRITERIA

As a result of HSWA, the Subtitle D Criteria and the mechanisms used to enforce them will be changed. HSWA requires EPA to submit a report to Congress by November 8, 1987, determining whether the Criteria are adequate to protect human health and the environment from ground-water contamination and if additional authorities are needed to enforce them. Furthermore, EPA must revise the Criteria by March 31, 1988, to address facilities that receive hazardous household waste or hazardous waste from small quantity generators (the definition of small quantity generators is discussed in Chapter 1 of Section III.) At a minimum, the revisions should require ground-water monitoring as necessary to detect contamination, establish Criteria on the acceptable location of new or existing facilities, and provide for corrective action, as appropriate. Congress' reason for requiring these revisions is the concern that small amounts of hazardous waste, coming from either households or small quantity generators, may accumulate at Subtitle D facilities and pose threats to human health or the environment.

In addition to revising the Criteria, HSWA requires the establishment of a permit program or other system of prior approval and conditions by November 8, 1987, for facilities receiving small amounts of hazardous waste. This permit program, or other system of prior approval and conditions, is meant to ensure that such facilities are in compliance with the Criteria. Within 18 months of the promulgation of the revised Criteria mentioned above, each State must modify its permit program or alternate system accordingly. If a State fails to develop and implement an appropriate permit program or other system of prior approval and conditions, by September 31, 1989, EPA is given the authority, under HSWA, to enforce the Criteria at facilities accepting household hazardous waste or small quantity hazardous generator waste.

SUMMARY

The Subtitle D program deals primarily with non-hazardous solid waste. The main goals of the program are to encourage solid waste management practices that:

- Promote environmentally sound disposal methods
- Maximize the reuse of recoverable resources
- Foster resource conservation.

To achieve these goals, EPA established:

- A voluntary program under which participating States may develop solid waste management plans. Those States that develop and implement EPA-approved plans are eligible for Federal technical and financial assistance. Each plan outlines the steps that the State will take to ensure that:
    - Solid waste is properly managed
    - Resources are conserved and recovered (where possible)
    - Open dumps are closed or upgraded
- Technical standards for solid waste management facilities. The standards, commonly called the Subtitle D Criteria, are mandatory and set out minimum technical requirements for environmentally acceptable solid waste disposal facilities. Each disposal facility that does not comply with one or more of the Criteria is classified as an open dump and included in the annual Inventory of Open Dumps.

As a result of HSWA, the Subtitle D Criteria will be revised to address facilities that receive small quantities of hazardous waste. In addition, the States must develop a permit program, or other system of prior approval and conditions, to enforce the revised Criteria at such facilities.

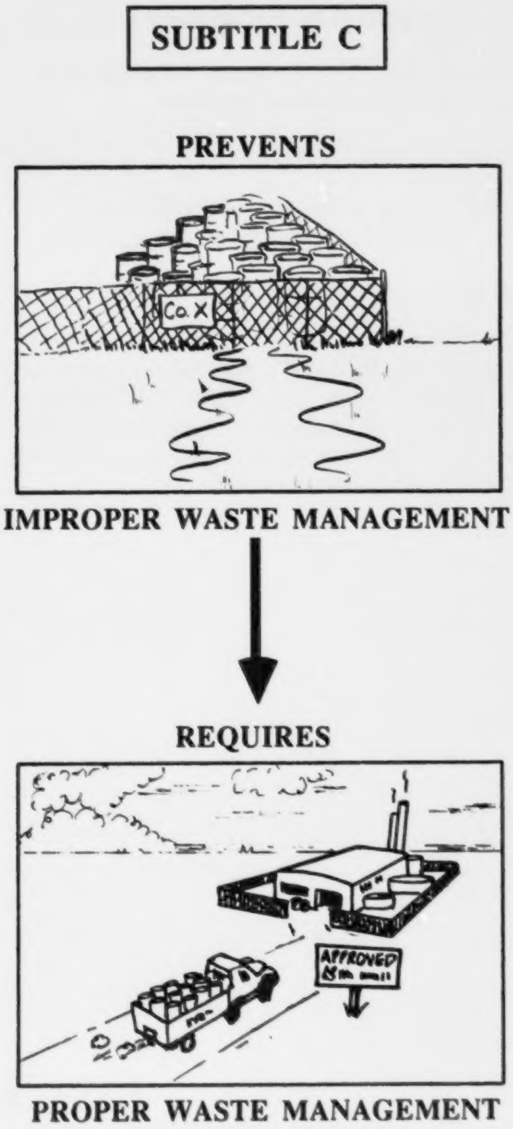
SECTION III

SUBTITLE C OF RCRA - MANAGING HAZARDOUS WASTE

- CHAPTER 1 --------- WHAT IS HAZARDOUS WASTE?
- CHAPTER 2 --------- REGULATIONS APPLICABLE TO GENERATORS OF HAZARDOUS WASTE
- CHAPTER 3 --------- REGULATIONS APPLICABLE TO TRANSPORTERS OF HAZARDOUS WASTE
- CHAPTER 4 --------- REGULATIONS APPLICABLE TO TREATMENT, STORAGE, AND DISPOSAL FACILITIES
- CHAPTER 5 --------- PERMITTING
- CHAPTER 6 --------- ENFORCEMENT
- CHAPTER 7 --------- STATE AUTHORIZATION
- CHAPTER 8 --------- PUBLIC PARTICIPATION
- CHAPTER 9 --------- RCRA AND ITS RELATIONSHIP TO SUPERFUND AND OTHER ACTS

SECTION III SUBTITLE C OF RCRA - MANAGING HAZARDOUS WASTE

OVERVIEW



The improper management of hazardous waste is probably the most serious environmental problem in the United States. In 1979, EPA estimated that only 10 percent of all hazardous waste was managed in an environmentally sound manner. The remainder was transported, treated, stored or disposed of in a way that potentially threatens human health and the environment. Since that time the amount of hazardous waste produced has steadily risen, and mismanagement is still prevalent.

This mismanagement has tragic consequences. EPA has on file hundreds of cases of damage to human health or the environment resulting from the indiscriminate dumping or other improper management of hazardous waste. The vast majority of these cases involve the pollution of ground water -- the source of drinking water for about half the nation's population -- from the open dumping of wastes or from improperly operated landfills and surface impoundments. In many of these cases, ground-water supplies were so badly contaminated with toxic or cancer-causing chemicals and heavy metals that residents in the area had to obtain drinking water from other sources. In other, more tragic cases, residents were not aware of the contamination, continued to drink the water, and suffered serious health effects.

Ground-water pollution is not the only problem posed by improper hazardous waste management. EPA's damage case file also includes incidents where the improper disposal of hazardous waste has polluted streams, rivers, lakes and other surface waters, killing aquatic life, destroying wildlife, and stripping areas of vegetation. In other cases, the vaporization of volatile organic materials from wastes that were improperly disposed of has been linked to respiratory illnesses, skin diseases (including skin cancer), and elevated levels of toxic materials in the blood and tissues of humans and domestic livestock. In still other cases, the mismanagement of hazardous waste has resulted in fires, explosions, or the generation of toxic gases that have killed or seriously injured workers and firemen.

The Subtitle C program developed under RCRA (Sections 3001 - 3019 of the Act) is designed to ensure that the mismanagement of hazardous wastes does not continue. It does this by creating a Federal "cradle to grave" management system that sets forth statutory and regulatory requirements for:

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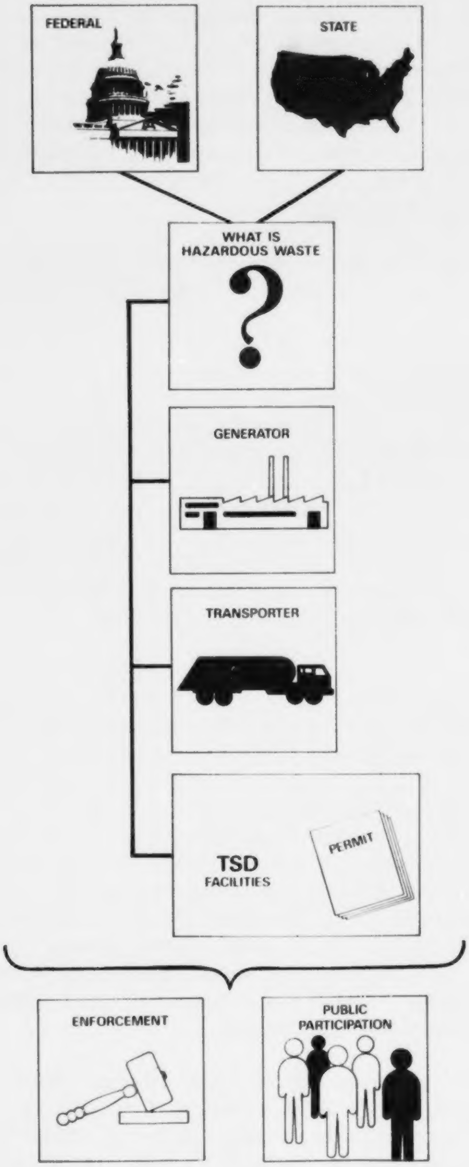
SUBTITLE C PROGRAM


FEDERAL
STATE
WHAT IS HAZARDOUS WASTE
?
GENERATOR
TRANSPORTER
TSD FACILITIES
PERMIT
ENFORCEMENT
PUBLIC PARTICIPATION

- Identifying hazardous waste
- Regulating generators of hazardous waste
- Regulating transporters of hazardous waste
- Regulating owners and operators of facilities that treat, store, or dispose of hazardous wastes
- Issuing operating permits to owners or operators of treatment, storage and disposal facilities
- Enforcing the Subtitle C program
- Transferring the responsibilities of the Subtitle C program from the Federal government to the States
- Requiring public participation in the Subtitle C program.

To fully explain these statutory and regulatory requirements each one of the areas listed above is given its own chapter in this section. There is also a separate chapter on the interrelationships between RCRA's Subtitle C program and other environmental statutes, primarily Superfund.

CHAPTER 1

WHAT IS HAZARDOUS WASTE?

- OVERVIEW
- DEFINITION OF *HAZARDOUS WASTE*
- IDENTIFICATION OF HAZARDOUS WASTE
    - CHARACTERISTICS
    - TESTING FOR HAZARDOUS WASTE CHARACTERISTICS
    - LISTINGS OF HAZARDOUS WASTE
    - MIXTURES
    - WASTES THAT ARE SPECIFICALLY EXCLUDED FROM SUBTITLE C REGULATION
- WHEN DOES A HAZARDOUS WASTE CEASE BEING HAZARDOUS?
- SPECIAL REQUIREMENTS FOR SMALL QUANTITY GENERATORS
- SUMMARY

CHAPTER 1 WHAT IS HAZARDOUS WASTE?

OVERVIEW

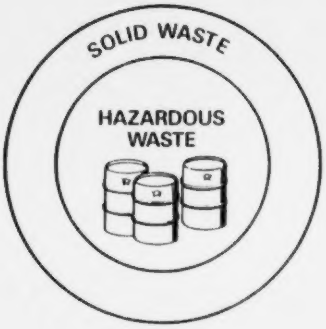
WHAT IS
HAZARDOUS WASTE
?

The regulatory framework established under Subtitle C was designed to protect human health and the environment from the effects of improper management of hazardous waste. Determining "what is a hazardous waste?" therefore, is a key question because only those wastes that are found to be hazardous are subject to Subtitle C regulations. Making this determination is a complex task. The universe of potential hazardous wastes is large and diverse, consisting of chemical substances, mixtures, generic waste streams, and specific products. Furthermore, wastes are potentially hazardous for different reasons. Congress addressed this problem by directing EPA (under Section 3001 of the Act) to develop and promulgate criteria for identifying the characteristics of hazardous waste and for listing particular wastes as hazardous.

It is upon this identification and listing of wastes that RCRA's Subtitle C program is based. All solid waste generators, from national manufacturers to the corner drycleaners, must determine if their solid waste is hazardous and thus subject to regulation under Subtitle C.

This chapter defines the term "hazardous waste" and describes how EPA determines if a solid waste is hazardous. Also discussed are those wastes specifically excluded from Subtitle C regulation.

DEFINITION OF *HAZARDOUS WASTE*



Congress defined the term "hazardous waste" in Section 1004(5) of RCRA as a "solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may:

(A) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or

(B) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed."

Note that RCRA defines hazardous wastes in terms of properties of a solid waste. Therefore, if a waste is not a solid waste, as defined in Section II, it cannot be a

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hazardous waste. The amount of hazardous waste generated by American industries is staggering. A 1981 survey by EPA estimates that 264 million metric tonnes of hazardous waste were generated that year. This translates into over 1 ton of hazardous waste generated per person, per year. The vast majority of these wastes come from the chemical and petroleum industries. These industries alone generate 71 percent of all hazardous wastes produced. The remainder comes from a wide range of other industries, including metal finishing, general manufacturing, and transportation.

IDENTIFICATION OF HAZARDOUS WASTE

A Solid Waste is Hazardous if it Meets One of Four Conditions:

- **Exhibits a characteristic**
- **Is listed**
- **Is a mixture**
- **Is not excluded.**

Although Congress defined the term "hazardous waste" in the Act, EPA was required to develop the regulatory framework that would identify those solid wastes that must be managed as hazardous wastes under Subtitle C. This framework (40 CFR Part 261), specifies that a solid waste is hazardous if it meets one of four conditions:

1) Exhibits, on analysis, any of the characteristics of a hazardous waste

2) Has been named as a hazardous waste and listed

3) Is a mixture containing a listed hazardous waste and a non-hazardous solid waste (unless the mixture is specifically excluded or no longer exhibits any of the characteristics of hazardous waste)

4) Is not excluded from regulation as a hazardous waste.

Furthermore, the by-products of the treatment of any hazardous waste are also considered hazardous unless specifically excluded.

CHARACTERISTICS

EPA has identified four characteristics for hazardous waste. Any solid waste that exhibits one or more of them is classified as hazardous under RCRA. The characteristics are:

- Ignitability
- Corrosivity
- Reactivity
- EP Toxicity.

EPA used two criteria in selecting these characteristics. The first criterion was that the characteristics be capable of being defined in terms of physical, chemical, or other properties that cause the waste to meet the definition of hazardous waste in the Act. The second criterion was that the properties defining the characteristics be measurable by standardized and available testing protocols. The second criterion was adopted because the primary responsibility for determining whether a solid waste exhibits any of the characteristics rests with the generators. EPA believed that unless generators were provided with widely available and uncomplicated methods for determining whether their wastes exhibited the characteristics, the identification system would prove unworkable.

Largely due to this second criterion, EPA refrained from adding carcinogenicity, mutagenicity, bioaccumulation potential, and phytotoxicity to the set of proposed characteristics. EPA considered the available test protocols for measuring these characteristics to be either insufficiently developed or too complex and too highly dependent on the use of skilled personnel and professional equipment. Additionally, given the current state of knowledge concerning such characteristics, EPA did not feel that it could define with any confidence the numerical threshold levels at which wastes exhibiting these characteristics would present a substantial hazard.

As testing protocols become generally acceptable and EPA's confidence in setting minimum thresholds increases, more characteristics will be added. Indeed, HSWA (Section 3001(h)) requires that the Administrator promulgate regulations identifying additional characteristics by November 8, 1986. These characteristics must include measures or indicators of toxicity.

The properties of wastes exhibiting any or all of the existing characteristics are defined in 40 CFR, Sections 261.20 - - 261.24, and briefly described below.

Ignitability

A solid waste that exhibits any of the following properties is considered a hazardous waste due to its ignitability:

- A liquid, except aqueous solutions containing less than 24 percent alcohol, that has a flash point less that 60 C (140 F)

- A non-liquid capable, under normal conditions, of spontaneous and sustained combustion
- An ignitable compressed gas per Department of Transportation (DOT) regulation
- An oxidizer per DOT regulation.

EPA's reason for including ignitability as a characteristic was to identify wastes that could cause fires during transport, storage, or disposal. Examples of ignitable wastes include waste oils and used solvents.

Corrosivity

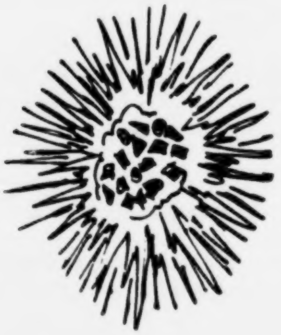
A solid waste that exhibits any of the following properties is considered a hazardous waste due to its corrosivity:

- An aqueous material with pH less than or equal to 2 or greater than or equal to 12.5
- A liquid that corrodes steel at a rate greater than 1/4 inch per year at a temperature of 55 C (130 F).

EPA chose pH as an indicator of corrosivity because wastes with high or low pH can react dangerously with other wastes or cause toxic contaminants to migrate from certain wastes. Steel corrosion was chosen because wastes capable of corroding steel can escape from their containers and liberate other wastes. Examples of corrosive wastes include acidic wastes and used pickle liquor (employed to clean steel during its manufacture).

Reactivity

A solid waste that exhibits any of the following properties is considered a hazardous waste due to its reactivity:



- Normally unstable and reacts violently without detonating
- Reacts violently with water
- Forms an explosive mixture with water
- Generates toxic gases, vapors, or fumes when mixed with water
- Contains cyanide or sulfide and generates toxic gases, vapors, or fumes at a pH of between 2 and 12.5

Constituent	Concentration mg/l
Arsenic	5.0
Barium	100.0
Cadmium	1.0
Chromium	5.0
Lead	5.0
Mercury	0.2
Selenium	1.0
Silver	5.0
Endrin	0.02
Lindane	0.4
Methoxychlor	10.0
Toxaphene	0.5
2,4 - D	10.0
2,4,5 - TP	1.0

Figure 1.1
Constituents and Concentrations for EP Toxicity

- Capable of detonation if heated under confinement or subjected to strong initiating source
- Capable of detonation at standard temperature and pressure
- Listed by DOT as Class A or B explosive.

Reactivity was chosen as a characteristic to identify unstable wastes that can pose a problem at any stage of the waste management cycle, e.g., an explosion. Examples of reactive wastes include water from TNT operations and used cyanide solvents.

EP Toxicity

The term EP toxicity often confuses newcomers to the program because, in addition to referring to a characteristic of a waste, it also refers to a test. The test, called the extraction procedure (EP), is designed to identify wastes likely to leach hazardous concentrations of particular toxic constituents into the ground water as a result of improper management.

During the procedure, constituents are extracted from the waste in a manner designed to simulate the leaching actions that occur in landfills. The extract is then analyzed to determine if it possesses any of the toxic contaminants listed in Figure 1.1. If the concentrations of the toxic constituent exceed the levels listed in Figure 1.1, the waste is classified as hazardous. Congress directed EPA, under HSWA, to examine the EP toxicity test to determine if modifications or additions could improve it as a diagnostic tool.

TESTING FOR HAZARDOUS WASTE CHARACTERISTICS

The responsibility for determining if a particular solid waste is hazardous falls on the generators. They must either test their waste using standard methods (specified in 40 CFR Part 261) or have sufficient knowledge about their waste to assess whether it exhibits any of the characteristics. If the waste does exhibit a characteristic, then it is hazardous and must be handled accordingly. Tests must be applied to each individual waste and cannot be used to assess a type of waste (other than to define the waste generically as hazardous). This provision was established to prevent a national company from making one waste determination and using the results nationwide, masking potential regional variations. The tests must also be run on representative samples to obtain results that adequately characterize the nature of the waste.

LISTINGS OF HAZARDOUS WASTE

A solid waste is also hazardous if it is named on one of three lists developed by EPA:

There are Three Lists of Hazardous Wastes:

- **Non-specific source wastes**
- **Specific source wastes**
- **Commercial chemical products.**

1) Non-specific source wastes (40 CFR Section 261.31) - These are generic wastes, commonly produced by manufacturing and industrial processes. Examples from this list include spent halogenated solvents used in degreasing, and wastewater treatment sludge from electroplating processes.

2) Specific source wastes (40 CFR Section 261.32) - This list consists of wastes from specifically identified industries such as wood preserving, petroleum refining and organic chemical manufacturing. These wastes typically include sludges, still bottoms, wastewaters, spent catalysts, and residues, e.g., wastewater treatment sludge from the production of pigments.

3) Commercial chemical products (40 CFR Section 261.33(e) and (f)) - The third list consists of specific commercial chemical products, or manufacturing chemical intermediates. This list includes chemicals such as chloroform and creosote, acids such as sulfuric acid and hydrochloric acid, and pesticides such as DDT and kepone.

These lists were developed by examining different types of wastes and chemical products to see if they:

- Exhibit one of the four characteristics of a hazardous waste (listed above)
- Meet the statutory definition of hazardous waste
- Are acutely toxic or acutely hazardous
- Are otherwise toxic.

Any solid waste that fulfills one or more of these criteria is placed on one of the three lists.

MIXTURES

One of the questions that faced EPA when setting the conditions for identifying hazardous wastes was how to classify a waste mixture that contains both a listed hazardous waste and a non-hazardous solid waste. EPA decided that any waste mixture containing a listed hazardous waste is considered a hazardous waste and must be managed accordingly. This applies regardless of what percentage of the waste mixture is composed of listed hazardous wastes. Without such a regulation, generators could evade Subtitle C requirements simply by commingling listed wastes with non-hazardous solid waste. Most of these waste mixtures would not be caught by the four Subtitle C characteristics because they would contain wastes which were listed for other reasons than exhibiting the characteristics, e.g., they are acutely toxic. Allowing this situation would leave a major loophole in the Subtitle C management system and create inconsistencies in how wastes are managed under that system. There are, however, a few exceptions to the mixture rule outlined above:

- If a wastewater discharge subject to regulation by the Clean Water Act is mixed with low concentrations of a listed waste, as specified in 40 CFR Section 261.3, the resultant mixture is not considered a listed hazardous waste. Of course, if such a mixture exhibited one of the characteristics it would be deemed hazardous.

- Mixtures of non-hazardous wastes and listed wastes that were listed for exhibiting a characteristic are not considered hazardous if the mixture no longer exhibits any characteristics.

WASTES THAT ARE SPECIFICALLY EXCLUDED FROM SUBTITLE C REGULATION

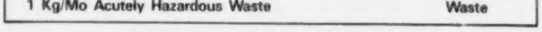
Congress decided that certain types of solid waste should not be considered hazardous waste under Subtitle C. These include a number of common solid wastes that do not present a significant threat to human health or the environment or are currently managed under other programs in a way that minimizes any threat to human health or the environment, e.g., household wastes, municipal resource recovery wastes, agricultural wastes, and mining overburden returned to the mine site. EPA amended Congress' list with certain chromium-containing wastes and laboratory samples. Language excluding these wastes from RCRA regulation is contained in 40 CFR Part 261.

In 1980, Congress temporarily excluded oil and gas wastes, mining wastes, waste from the combustion of coal or other fossil fuels, and cement kiln dust waste. To find out if these wastes should be regulated at all, Congress, under Section 8002 of the Act, directed EPA to conduct studies and report on whether the results indicate that the wastes should be regulated under Subtitle C. Some of these studies, commonly referred to as the 8002 studies, have been completed; others have not.

WHEN DOES A HAZARDOUS WASTE CEASE BEING HAZARDOUS?

EPA recognized that its procedures for listing hazardous wastes might not be applicable in all cases. To provide for these cases, EPA created a process called delisting that allows any person, e.g., waste handler or general public, to petition EPA to exclude a listed waste from regulation under Subtitle C. For a petitioner to get a waste delisted he must prove to EPA that the waste is not hazardous because of facility-specific variations in raw materials, processes, or other factors. In evaluating a delisting petition, EPA must consider factors including constituents other than those for which the waste was listed, if EPA has a reasonable basis to believe that such additional factors could cause the waste to be a hazardous waste. If, upon evaluation, it is determined that the waste is not hazardous due to conditions at the facility, that waste is removed from Subtitle C's regulatory jurisdiction. It is important to note that delisting is done on a case-by-case basis. Therefore, if a waste is delisted at one facility, it is not automatically delisted at other facilities.

SPECIAL REQUIREMENTS FOR SMALL QUANTITY GENERATORS


Less than 1,000 Kg/Mo Hazardous Waste
1984
AMENDMENTS
Less than 100 Kg/Mo Hazardous Waste
or
or
1 Kg/Mo Acutely Hazardous Waste
1 Kg/Mo Acutely Hazardous Waste

CHANGES IN SMALL QUANTITY GENERATOR EXEMPTION

Early in the development of the RCRA program EPA recognized that the hazardous waste regulations would impose a substantial burden on the regulated community. Further, it recognized that if all small generators were brought entirely within the Subtitle C regulatory system, their numbers would far outstrip the resources available to achieve effective implementation of the program. Thus, in issuing waste regulations, EPA first focused on large generators who produce the greatest portion of hazardous waste. The initial EPA regulations, published on May 19, 1980, exempted "small quantity generators" (SQGs) from most of the hazardous waste requirements. A small quantity generator was defined as a:

- Generator who produced less than 1,000 kilograms of hazardous waste at a site per month (or accumulated less than 1,000 kilograms at any one time)
- Generator who produced less than 1 kilogram of acutely hazardous waste per month (or accumulated less than 1 kilogram at any one time).

These small quantity generators did have to meet some minimum management requirements, including testing their waste, storing the waste properly and disposing of the waste at approved facilities.

Since 1980, concern has arisen that hazardous wastes exempted from regulation due to the SQG exclusion could be causing environmental harm. Therefore, Congress, in HSWA, amended the definition of a SQG, reducing the cut-off point from 1,000 kg to 100 kg. Thus, the new definition of a SQG is a:

- Generator who produces less than 100 kg of hazardous waste at a site per month (or accumulates less than 100 kg at any one time)
- Generator who produces less than 1 kg of acutely hazardous waste per month (or accumulates less than 1 kg at any one time).

In addition, HSWA requires EPA to develop regulations covering generators of between 100 and 1,000 kg/mo of hazardous waste to ensure, among other things, that these wastes are managed at approved facilities. Congress was concerned, however, that full regulation of these generators might not be appropriate because many of them are small businesses with limited resources. Thus, EPA was given the authority to vary the regulatory requirements applicable to these generators from those applied to larger generators, provided that the requirements are still protective of human health and the environment. To balance the need for regulation of this group with the impacts of such regulation on small firms, EPA has proposed modifying the existing Subtitle C generator regulations for generators of between 100 and 1,000 kg/mo of hazardous waste who ship their waste off-site. These proposed regulations include:

- Reducing manifesting and recordkeeping requirements
- Extending accumulation (storage) times before interim status or a permit is required (180 days instead of 90; 270 days if the waste must be shipped over 200 miles).

A decision on these proposed regulations will be made on or before March 31, 1986.

Note that the modifications to the regulation just described do not apply to generators of between 100 and 1,000 kg/mo who store their waste on-site. They must meet all generator requirements. Generators of over 1,000 kg/mo of hazardous waste or 1 kg/mo of acutely hazardous waste must, as was the case before the amendments, meet the full generator requirements.

SUMMARY

All solid waste generators must determine if their waste is hazardous and, therefore, subject to regulation under Subtitle C. The Subtitle C regulations specify that a solid waste is hazardous if it meets one of four conditions:

1) Exhibits one of four characteristics:
    - Ignitability
    - Corrosivity
    - Reactivity
    - EP Toxicity
2) Is listed
3) Is a mixture
4) Is not excluded.

Through a process called delisting any person can petition EPA to exclude a listed waste from regulation under Subtitle C. Furthermore, generators who produce less than either 100 kg/mo of hazardous waste or 1 kg/mo of acutely hazardous waste or accumulate less than these amounts at any one time, called small quantity generators, are exempted from most of the Subtitle C requirements.

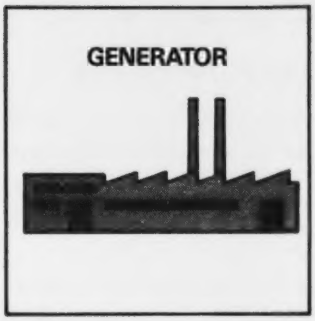
CHAPTER 2

REGULATIONS APPLICABLE TO GENERATORS OF HAZARDOUS WASTE

- OVERVIEW
- WHO ARE THE GENERATORS?
- REGULATORY REQUIREMENTS
    - EPA ID NUMBER
    - PRE-TRANSPORT REGULATIONS
    - THE MANIFEST
    - RECORDKEEPING AND REPORTING
- ADDITIONAL GENERATOR REQUIREMENTS AND EXCLUSIONS
    - INTERNATIONAL SHIPMENTS
    - FARMER EXCLUSION
- SUMMARY

CHAPTER 2 REGULATIONS APPLICABLE TO GENERATORS OF HAZARDOUS WASTE

OVERVIEW



Generators of hazardous waste are the first link in the cradle to grave chain of hazardous waste management established under RCRA. Generators of more than 100 kilograms of hazardous waste or 1 kilogram of acutely hazardous waste per month must (with a few exceptions) comply with all of the generator regulations developed under Subtitle C (40 CFR Part 262). Subtitle C requires generators to ensure and fully document that the hazardous waste they produce is properly identified and transported to a RCRA treatment, storage, or disposal facility.

WHO ARE THE GENERATORS?

The Subtitle C regulations broadly define the term "generator" to include any:

- Facility owner or operator or person who first creates a hazardous waste
- Person who first makes the waste subject to the Subtitle C regulations (e.g., imports a hazardous waste, initiates a shipment of a hazardous waste from a TSD, or mixes hazardous wastes of different DOT shipping descriptions by placing them into a single container).

To define the subset of solid waste generators that must comply with Subtitle C generator regulations, it is necessary to distinguish between generators who produce or handle non-hazardous solid waste and ones that produce or handle hazardous solid waste. Subtitle C separates these two groups by requiring all generators of solid waste to determine if any of their waste is hazardous using the procedures outlined in Chapter 1. Once a generator determines that all or part of the waste produced is hazardous he must comply with the regulatory requirements of Subtitle C.

REGULATORY REQUIREMENTS

The regulatory requirements for hazardous waste generators include:

- Obtaining an EPA ID number
- Handling of hazardous waste before transport

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- Manifesting of hazardous waste
- Recordkeeping and reporting.

All Subtitle C generators, however, are not treated equally. Some generators do not have to comply with all of the regulatory requirements listed above. The specific requirements of and exemptions to the Subtitle C generator regulations are outlined below.

EPA ID NUMBER

One way that EPA monitors and tracks generators is by assigning each generator a unique identification number. Without this number the generator is barred from treating, storing, disposing of, transporting, or offering for transportation any hazardous waste. Furthermore, the generator is forbidden from offering his hazardous waste to any transporter, or treatment, storage, or disposal facility that does not also have an EPA ID number.

PRE-TRANSPORT REGULATIONS

Pre-transport regulations are designed to ensure safe transportation of a hazardous waste from origin to ultimate disposal. In developing these regulations, EPA adopted those used by the Department of Transportation (DOT) for transporting hazardous wastes (49 CFR Parts 172, 173, 178, and 179). These DOT regulations require:

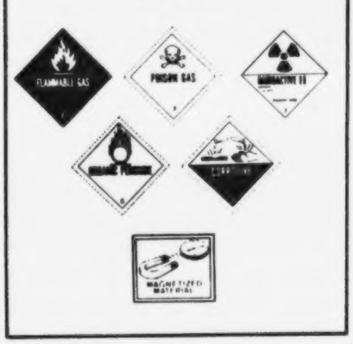
- Proper packaging to prevent leakage of hazardous waste, during both normal transport conditions and in potentially dangerous situations, e.g., when a drum falls out of a truck
- Identification of the characteristics and dangers associated with the wastes being transported through labeling, marking and placarding of the packaged waste.

It is important to note that these pre-transport regulations only apply to generators shipping waste off-site.

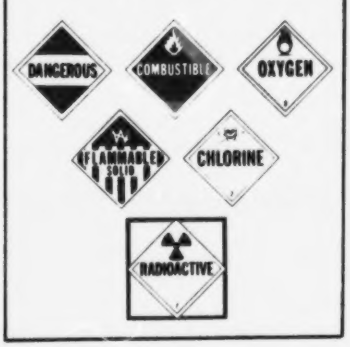
In addition to adopting the DOT regulations outlined above, EPA also developed pre-transport regulations that cover the accumulation of waste prior to transport. A generator may accumulate hazardous waste on-site for 90 days or less as long as the following requirements are met:

- Proper Storage -- The waste is properly stored in containers or tanks marked with the words "Hazardous Waste" and the date on which accumulation began.

Labels

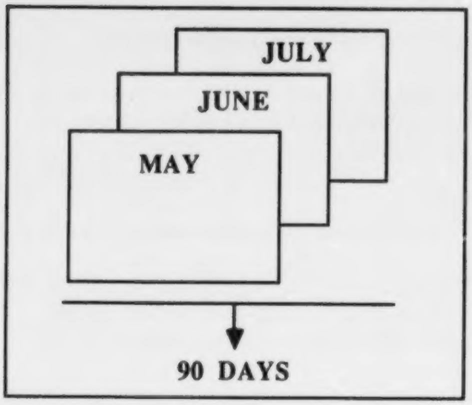


Placards



- Emergency Plan -- A contingency plan and emergency procedures to use in an emergency must be developed.

- Personnel Training -- Facility personnel must be trained in the proper handling of hazardous waste.



A Generator May Accumulate Hazardous Waste for 90 Days Before Being Considered a Storage Facility

The 90-day period allows a generator to collect enough waste to make transportation more cost-effective, that is, instead of paying to haul several small shipments of waste, the generator can accumulate waste until there is enough for one big shipment.

If the generator accumulates hazardous waste on-site for more than 90 days he is considered an operator of a storage facility and must comply with the Subtitle C requirements for such facilities. Under temporary, unforeseen and uncontrollable circumstances the 90-day period may be extended, for up to 30 days, by the Regional Administrator on a case-by-case basis.

In the near future there will be an exception to this 90-day accumulation period that applies to generators of between 100 and 1,000 kg/mo of hazardous waste who ship their waste off-site. HSWA requires that regulations be developed to allow such generators to accumulate waste for 180 days (or 270 days if the waste must be shipped over 200 miles) before they are considered an operator of a storage facility.

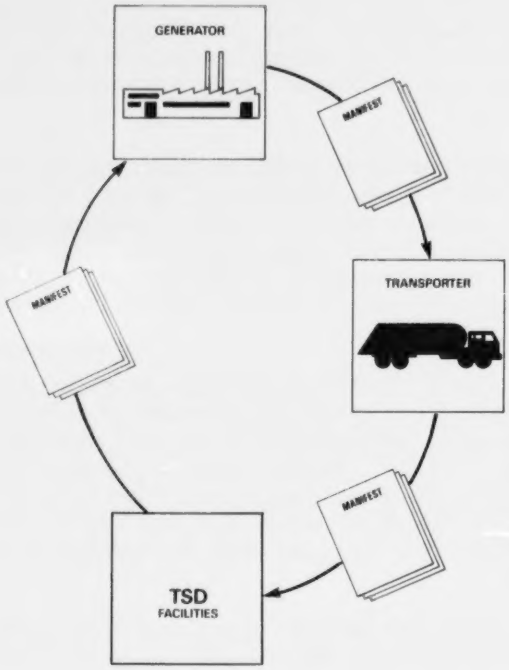
THE MANIFEST

As mentioned earlier, the Subtitle C program was designed to manage hazardous waste from cradle to grave. The Uniform Hazardous Waste Manifest (the manifest) is the key to this objective (see Appendix A). Through the use of a manifest, generators can track the movement of hazardous waste from the point of generation (the cradle) to the point of ultimate treatment, storage, or disposal (the grave). RCRA manifests contain a lot of information including the following:

- Name and EPA identification number of the generator, the transporter(s), and the facility where the waste is to be treated, stored, or disposed of

- U.S. DOT description of the waste being transported

- Quantities of the waste being transported
- Address of the treatment, storage, or disposal facility to which the generator is sending his waste (the designated facility)



In addition, HSWA requires that each manifest certify that:

- The generator has in place a program to reduce the volume and toxicity of the waste to the degree economically practicable, as determined by the generator
- The treatment, storage or disposal method chosen by the generator is that practicable method currently available that minimizes the risk to human health and the environment.

It is especially important for the generator to prepare the manifest properly since he is responsible for the hazardous waste he produces and its ultimate disposition.

The manifest is part of a controlled tracking system. Each time the waste is transferred, e.g., from a transporter to the designated facility or from a transporter to another transporter, the manifest must be signed to acknowledge receipt of the waste. A copy of the manifest is retained by each link in the transportation chain. Once the waste is delivered to the designated facility the owner or operator of that facility must send a copy of the manifest back to the generator. This system ensures that the generator has documentation that his hazardous waste has made it to its ultimate destination. At the time this manual was printed, EPA was taking comments on proposed regulations that would reduce the manifesting requirements for generators of 100 - 1,000 kg/mo of hazardous waste who transport their waste off-site. Because the purpose of a manifest is to track hazardous waste off-site, it is not required for generators who treat, store, or dispose of their waste on-site.

If 35 days pass from the date on which the waste was accepted by the initial transporter and the generator has not received a copy of the manifest from the designated facility, the generator must contact the transporter and/or the designated facility to determine the whereabouts of the waste. If 45 days pass and the manifest still has not been received, the generator must submit an exception report (described below).

RECORDKEEPING AND REPORTING

The recordkeeping and reporting requirements for generators provide EPA and the States with a method to track the quantities of waste generated and the movement of hazardous wastes. Subtitle C contains three primary recordkeeping and reporting requirements:

- Biennial reporting
- Exception reporting
- Three year retention of reports, manifests, and test records.

Biennial Reporting

Generators who transport hazardous waste off-site must submit a biennial report to the Regional Administrator by March 1 of each even-numbered year. The report details the generator's activities during the previous calendar year including:

- EPA identification number and name of each transporter used throughout the year
- EPA identification number, name, and address of each off-site treatment, storage, or disposal facility to which waste was sent during the year
- Quantities and nature of the hazardous waste generated.

HSWA expanded the scope of the biennial report to include a description of:

- Efforts taken to reduce the volume and toxicity of the wastes generated
- Changes in volume or toxicity that were actually achieved, as compared with those achieved in previous years.

Generators who treat, store, or dispose of their hazardous waste on-site also must submit a biennial report that contains a description of the type and quantity of hazardous waste the facility handled during the year, and the method(s) of treatment, storage, or disposal used.

Exception Reports

In addition to the biennial report, generators who transport waste off-site must submit an exception report to the Regional Administrator if they do not receive a copy of the manifest signed and dated by the owner or operator of the designated facility within 45 days from the date on which the initial transporter accepted the waste. The exception report must describe efforts taken to locate the waste, and the results of these efforts.

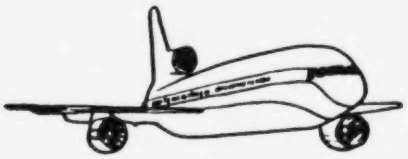
Three Year Retention of Reports, Manifests, and Test Records

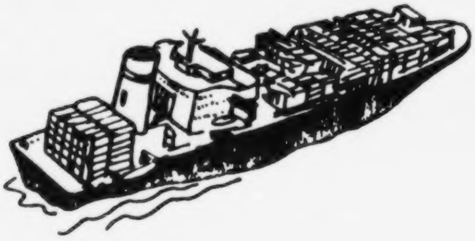
The generator must keep a copy of each biennial report and any exception reports for a period of at least 3 years from the date the report was submitted. The generator also is required to keep a copy of all manifests for 3 years or until he receives a copy of the manifest signed and dated from the owner or operator of the designated facility. The manifest from the facility must then be kept for at least 3 years from the date on which the hazardous waste was accepted by the initial transporter. Finally, the records of the waste analyses and determinations undertaken by the generator must be kept for at least 3 years from the date that the waste was last sent to an on-site or off-site TSD. The periods of retention mentioned above can be extended automatically during the course of any unresolved enforcement action regarding the regulated activity or as requested by the Administrator. As with the manifesting requirements, at the time this manual was printed the EPA was taking comments on proposed regulations that would reduce the recordkeeping requirements for generators of 100-1,000 kg/mo of hazardous waste who ship their waste off-site.

ADDITIONAL GENERATOR REQUIREMENTS AND EXCLUSIONS

Additional generator requirements apply to persons who export their wastes. Furthermore, farmers have been excluded from complying with generator requirements under certain circumstances. These two situations are discussed below.

INTERNATIONAL SHIPMENTS





Prior to HSWA the regulations allowed hazardous wastes to be exported from the United States with only minimal notice to EPA or the receiving country. RCRA, as amended, however, sets additional notification requirements for such exports.

These new requirements direct the exporter to notify the Administrator of the nature of the shipment, e.g., dates, quantity, and description of the wastes, at least 4 weeks prior to shipment. Within 30 days of the receipt of this notification, the State Department, acting on behalf of the Administrator, must inform the receiving country about the export. The country, in turn, must consent (in writing) to accept the waste. If an international agreement exists between the United States and the receiving country, then notice and consent for each shipment are not required.

Regulations for these new notification requirements are supposed to be developed. If such regulations are not developed by November 6, 1986, the statutory requirements automatically take effect.

FARMER EXCLUSION

Although farmers can be generators of hazardous waste, they need not comply with the Subtitle C regulations for generators when the wastes being disposed of are pesticides used only by them and the:

- Empty pesticide containers are triple rinsed
- Pesticide residues are disposed of on the farm following the instructions on the pesticide label.

SUMMARY

Generators of more than 100 kilograms of hazardous waste or 1 kilogram of acutely hazardous waste per month must comply with all of the generator regulations under Subtitle C. These include:

- Obtaining an EPA ID number
- Handling of hazardous waste before transport
- Manifesting of hazardous waste
- Recordkeeping and reporting.

Under certain circumstances, farmers, generators who treat, store, or dispose of their waste on-site, and generators of 100-1,000 kg/mo who ship their waste off-site are exempted from some or all of the generator requirements.

CHAPTER 3

REGULATIONS APPLICABLE TO TRANSPORTERS OF HAZARDOUS WASTE

- OVERVIEW
- WHO ARE THE TRANSPORTERS?
- REGULATORY REQUIREMENTS FOR TRANSPORTERS
    - EPA ID NUMBERS
    - THE MANIFEST
    - DEALING WITH HAZARDOUS WASTE DISHCARGES
- SUMMARY

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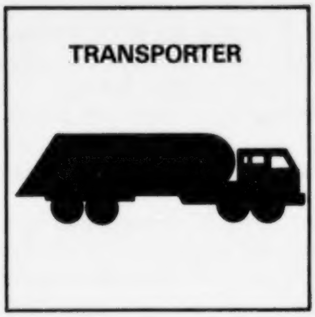
CHAPTER 3

REGULATIONS APPLICABLE TO TRANSPORTERS OF HAZARDOUS WASTE

OVERVIEW



Transporters of hazardous waste are the critical link between the generator and the ultimate off-site treatment, storage, or disposal of hazardous waste. The transporter regulations were developed jointly by EPA and the DOT to avoid contradictory requirements coming from the two agencies. Although the regulations are integrated, they are not contained under the same Act. A transporter must comply with the regulations under 49 CFR Parts 171-179 (The Hazardous Materials Transportation Act) as well as those under 40 CFR Part 263 (Subtitle C of RCRA). The remainder of this section summarizes the Subtitle C regulations applicable to transporters. Those readers interested in getting a more complete picture should review the DOT Regulations.

WHO ARE THE TRANSPORTERS?

A transporter under Subtitle C is defined as any person engaged in the off-site transportation of hazardous waste within the United States, if such transportation requires a manifest under 40 CFR Part 262 (see Chapter 2). This definition covers transport by air, rail, highway, or water. The transporter regulations do not apply to either the on-site transportation of hazardous waste by generators who have their own TSDs or to TSDs transporting wastes within a facility.

A Transporter is Defined as:

Any person engaged in the off-site transportation of manifested hazardous waste, by air, rail, highway, or water.

Under certain circumstances a transporter of hazardous waste may be subject to regulatory requirements other than those contained in 40 CFR Part 263. Once a transporter accepts hazardous waste from a generator or another transporter he can store it at a transfer station for up to 10 days without being subject to any new regulations. However, if the storage time exceeds 10 days, the transporter is considered a storage facility and must comply with the regulations for such a facility (see Chapter 4). In addition, transporters who bring hazardous waste into the United States or mix hazardous wastes of different DOT shipping descriptions by placing them in the same container are classified as generators, and must comply with the regulations applicable to generators outlined in Chapter 2.

REGULATORY REQUIREMENTS FOR TRANSPORTERS

A transporter is subject to a number of regulations, including ones for:

- Obtaining an EPA ID number

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- Complying with the manifest system
- Dealing with hazardous waste discharges.

EPA ID NUMBER

One way that the EPA keeps track of transporters is by requiring each transportation company to obtain a unique ID number from EPA. Without this ID the transporter is forbidden from handling any hazardous waste. Furthermore, a transporter may not accept waste from a generator unless that generator has an EPA ID number.

THE MANIFEST

The major responsibilities of the transporter in the manifest system were discussed in Chapter 2. In summary, the transporter is required to deliver the entire quantity of waste which he accepted from either the generator or another transporter to the designated facility listed on the manifest. If the waste cannot be delivered as the manifest directs, the transporter must inform the generator and receive further instructions, e.g., return the waste or take it to another facility. Before handing the waste over to a TSD the transporter must have the TSD sign and date the manifest. One copy of the manifest remains at the TSD facility while the other stays with the transporter. The transporter must retain a copy of the manifest for 3 years from the date the hazardous waste was accepted by the initial transporter.

DEALING WITH HAZARDOUS WASTE DISCHARGES

Even if generators and transporters of hazardous waste comply with all appropriate regulations, transporting hazardous waste can still be dangerous. There is always the possibility that an accident will occur. To deal with this possibility, the regulations require transporters to take immediate action to protect health and the environment if a release occurs, e.g., notifying local authorities and/or diking off the discharge area.

The regulations also give certain officials special authority to deal with transportation accidents. Specifically, if a Federal, State, or local official, with appropriate authority, determines that the immediate removal of the waste is necessary to protect human health or the environment, he can authorize waste removal by a transporter who lacks an EPA ID and without the use of a manifest.

SUMMARY

A transporter of hazardous waste must comply with both DOT and EPA regulations. The Subtitle C regulations require a transporter to:

- Obtain an EPA ID number
- Comply with the manifest system
- Deal with hazardous waste discharges.

Under certain circumstances a transporter of hazardous waste may also be subject to Subtitle C generator and/or storage facility requirements.

CHAPTER 4

REGULATIONS APPLICABLE TO TREATMENT, STORAGE, AND DISPOSAL FACILITIES

- OVERVIEW
- WHAT IS A TSD?
- REGULATORY REQUIREMENTS
- INTERIM STATUS AND PERMIT ADMINISTRATIVE AND NON-TECHNICAL REQUIREMENTS
    - SUBPART A - WHO IS SUBJECT TO THE REGULATIONS?
    - SUBPART B - GENERAL FACILITY STANDARDS
    - SUBPARTS C & D - PREPAREDNESS AND PREVENTION, AND CONTINGENCY PLAN AND EMERGENCY PROCEDURES
    - SUBPART E - MANIFEST SYSTEM, RECORDKEEPING AND REPORTING
- INTERIM STATUS (PART 265) TECHNICAL REQUIREMENTS
- *GENERAL STANDARDS*
    - SUBPART F - GROUND-WATER MONITORING
    - SUBPART G - CLOSURE, POST-CLOSURE
    - SUBPART H - FINANCIAL REQUIREMENTS
- *SPECIFIC STANDARDS*
    - SUBPART I - CONTAINERS

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CHAPTER 4 (CONT.)

- SUBPART J - TANKS
- SUBPART K - SURFACE IMPOUNDMENTS
- SUBPART L - WASTE PILES
- SUBPART M - LAND TREATMENT
- SUBPART N - LANDFILLS
- SUBPART O - INCINERATORS
- SUBPART P - THERMAL TREATMENT
- SUBPART Q - CHEMICAL, PHYSICAL, AND BIOLOGICAL TREATMENT
- SUBPART R - UNDERGROUND INJECTION

- PERMIT (PART 264) TECHNICAL REQUIREMENTS
- *GENERAL STANDARDS*
  - SUBPART F - GROUND-WATER PROTECTION
- *SPECIFIC STANDARDS*
  - SUBPARTS I & J - CONTAINERS AND TANKS
  - SUBPART K - SURFACE IMPOUNDMENTS
  - SUBPART L - WASTE PILES
  - SUBPART M - LAND TREATMENT
  - SUBPART N - LANDFILLS
  - SUBPART O - INCINERATORS
- SUMMARY

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CHAPTER 4 REGULATIONS APPLICABLE TO TREATMENT, STORAGE, AND DISPOSAL FACILITIES

OVERVIEW

TSD
FACILITIES

Treatment, storage, and, disposal facilities (TSDs) are the last link in the cradle to grave hazardous waste management system. Subtitle C requires all TSDs handling hazardous waste to obtain an operating permit (a process described in the next chapter) and abide by the treatment, storage, and disposal regulations. The TSD regulations establish performance standards that owners and operators must apply to minimize the release of hazardous waste into the environment. Because treatment, storage, and disposal involve many different types of facilities, e.g., a landfill or an incinerator, these regulations are far more extensive than those just described for generators and transporters. Due to this extensiveness, this chapter provides only a summary of the TSD requirements. To obtain the details the reader is encouraged to examine 40 CFR Parts 264 and 265.

As a result of HSWA, profound changes in the RCRA program will occur in the near future that will affect disposal practices. HSWA requires the Administrator to review, according to a statutory schedule, the wastes specified in Section 3004(d)(2) of the Act (commonly called California wastes), solvents and dioxins, and all listed hazardous wastes to determine if they should be "banned" from land disposal. He must also determine if specified wastes, solvents and dioxins should be banned from underground injection. If the Administrator fails to make these determinations according to the statutory schedule then the hazardous waste is banned from land disposal or underground injection. Because these determinations were underway at the time this manual was written, the reader should be aware that they will have an impact on what is described in this chapter.

WHAT IS A TSD?

The definition of a TSD, according to 40 CFR Part 260.10, encompasses three different functions:

- Treatment - Any method, technique, or process, including neutralization, designed to change the physical, chemical, or biological character or composition of any hazardous waste so as to neutralize it, or render it non-hazardous or less hazardous, or to recover it, make it safer to transport, store or dispose of, or amenable for recovery, storage or volume reduction.
- Storage - The holding of hazardous waste for a temporary period, at the end of which the hazardous waste is treated, disposed or stored elsewhere.

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- Disposal - The discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste or hazardous waste into or on any land or water so that any constituent thereof may enter the environment or be emitted into the air or discharged into any waters, including ground waters.

REGULATORY REQUIREMENTS

The Act establishes two categories of TSDs based on a facility's status regarding a permit. The first category is made up of "interim status" facilities, ones that have not obtained a permit. Although Section 3005(a) of the Act specifies that only permitted facilities may operate, Congress, in developing this requirement, recognized that it would take many years for EPA to issue all permits. Therefore, it established interim status under Section 3005(e) of the Act, which allows owners and operators of facilities in existence on November 19, 1980 (or brought under Subtitle C regulation due to an amendment), who meet certain conditions, to continue operating as if they have a permit until their permit application is issued or denied. The second category is made up of facilities that have a permit.

Under Section 3004(a) of the Act, EPA was required to develop regulations for all TSDs. Although only one set was required, EPA developed two sets of regulations, one for interim status TSDs, the other for permitted TSDs. The reason for doing this is that during the process of developing TSD regulations, EPA decided that owners and operators of facilities in interim status should meet only a portion of the requirements permitted facilities must meet.

The interim status standards, found in 40 CFR Part 265, are primarily "good housekeeping practices" that owners and operators must follow to properly manage hazardous wastes during the interim status period. The permit standards, on the other hand, found in 40 CFR Part 264, are "design and operating" criteria that permit writers include in facility-specific permits. Both interim status and permit standards consist of two parts:

- Administrative and non-technical requirements
- Technical requirements.

Because the administrative and non-technical requirements are nearly identical for interim status and permit standards, they are discussed together in this chapter. However, the technical requirements applied to interim status and permitted facilities are significantly different and are, therefore, discussed separately. The technical requirements for interim status facilities (Part 265) are discussed before those for permitted facilities (Part 264) to reflect the chronological order in which these two sets of requirements are applied (facilities move from interim to permitted status). Thus, the organization of this chapter is broken into three parts. The first part describes the administrative and non-technical requirements that apply to both interim status and permitted facilities. The second part describes the technical requirements that apply to interim status facilities. Finally, the third part describes the technical requirements that permitted facilities must comply with.

INTERIM STATUS AND PERMIT ADMINISTRATIVE AND NON-TECHNICAL REQUIREMENTS

The purpose of the administrative and non-technical requirements is to ensure that owners and operators of TSDs establish the necessary procedures and plans to run a facility properly and to handle any emergencies or accidents. They are in Subparts A through E of 40 CFR Parts 264 and 265 and cover the subject areas shown below:

Subpart	Subject
A	Who is subject to the Regulations?
B	General Facility Standards • Waste analysis • Security • Inspections • Training • Ignitable, reactive or incompatible wastes • Location standards (permitted facilities)
C	Preparedness and Prevention
D	Contingency Plans and Emergency Procedures
E	Manifest System, Recordkeeping and and Reporting

SUBPART A - WHO IS SUBJECT TO THE REGULATIONS?

Subpart A outlines who is subject to the TSD regulations and any circumstances under which a person is excluded or only subject to limited requirements. In general, all owners or operators of facilities treating, storing, or disposing of hazardous wastes must meet the appropriate TSD regulations. The exceptions to this include:

- A farmer disposing of pesticides from his own use
- The owner or operator of a total enclosed treatment facility
- The owner or operator of a neutralization unit or a waste water treatment unit (publicly owned treatment works that mix hazardous waste with other wastes are regulated)
- A person responding to a hazardous waste spill or discharge
- Facilities that reuse, recycle or reclaim hazardous waste (persons who produce, burn and distribute hazardous waste derived fuel and used oil recyclers are regulated as a result of HSWA)
- Generators (including small quantity generators) accumulating wastes within the time periods specified in Sections 3001 and 3002 of the Act
- A transporter storing manifested shipments less than 10 days
- A facility regulated by an authorized State program (such facilities are regulated by the State program instead of the Federal program).

In addition, owners or operators of facilities regulated by other environmental laws under a permit-by-rule, discussed in Chapter 5, need only meet minimum TSD regulations.

SUBPART B - GENERAL FACILITY STANDARDS

Before handling any hazardous wastes, every facility owner or operator must apply to EPA for an Identification Number. They must also ensure that their wastes are properly identified and handled, that facilities are secure and operating properly, and that personnel working at facilities are trained in hazardous waste management. To satisfy these conditions, owners and operators must:

- Conduct Waste Analyses - Waste analyses are conducted prior to treatment, storage and disposal to ensure that owners or operators possess sufficient information on the properties of the waste they manage to be able to treat, store, or dispose of them in a manner that will not pose a threat to human health or the environment. The regulations require owners or operators to perform detailed chemical and physical analysis of their wastes, to develop and follow a written waste analysis plan that specifies tests and test frequencies, and to test any incoming wastes.

KEEP OUT
DANGER

- Install Security Measures - The security requirements were developed to prevent the unknowing entry of people and minimize the potential for the unauthorized entry of people or livestock onto the active portions of facilities. To meet these security objectives an artificial or natural barrier surrounding the active portion of the facility with controlled entry systems or 24-hour surveillance must be installed and warning signs posted. Owners or operators must also take precautions to avoid fires, explosions, generation of toxic gases and any other events that would threaten human health, safety, and the environment. There are two exemptions from these requirements: (1) if unauthorized or unknowing entry will not result in injury, and (2) if the disturbance of waste or equipment will not result in environmental damage.

- Conduct Inspections - The regulations require an owner or operator to develop and follow a written inspection schedule to assess the status of the facility and detect potential problem areas. Any observations made during the inspections are recorded in the facility's operating log and kept on file for 3 years. Any problem areas found must be remedied.

- Conduct Training - The purpose of the training requirements is to reduce the potential for mistakes which might threaten human health or the environment. This is accomplished by ensuring that facility personnel acquire expertise in the areas to which they are assigned. The requirements specify: when facility personnel must be trained, e.g., 6 months after beginning a job; the records to be maintained; and the minimum frequency with which the initial training received by the employees must be updated. Both on-the-job training and in-house training programs may be used to meet the training requirements.

- Properly Manage Ignitable, Reactive or Incompatible Wastes - In general, all ignitable or reactive wastes must be protected from sources of ignition or reaction or treated to remove the cause of concern.

Owners or operators must also make sure that treatment, storage or disposal of ignitable, reactive or incompatible waste does not result in damage to the containment structure (container, tank, surface impoundment, landfill cell, or pit) and/or threaten human health or the environment. Incompatible wastes must not be placed in the same containment structure if there is the potential for a reaction.

- Comply With Location Standards - These requirements only apply to owners or operators who are obtaining a permit for a new facility. Current location standards prohibit siting a new facility in a location where flood or earthquakes could affect a waste management unit, possibly causing wastes to be released. HSWA calls for EPA to define areas of vulnerable hydrogeology and to develop criteria for acceptable facility locations. Regulating the location of existing facilities also must be considered.

SUBPARTS C & D - PREPAREDNESS AND PREVENTION, AND CONTINGENCY PLAN AND EMERGENCY PROCEDURES

These two subparts, originally grouped as one, were developed to prepare for emergencies. The preparedness and prevention requirements are explicit (e.g., installing fire protection equipment, alarms and arranging for coordination with the local authorities in emergency situations) and are intended to minimize the possibility and effects of a release, fire or explosion. Contingency plan requirements are the logical next step. They require an owner or operator to develop an action plan for emergency situations. One of the key requirements of this plan is the designation of an emergency coordinator who is responsible for directing response measures and reducing the adverse impacts of hazardous waste releases.

SUBPART E - MANIFEST SYSTEM, RECORDKEEPING AND REPORTING

These requirements specify that the manifest be returned from the facility owner or operator to the generator, thus completing the manifest loop established in 40 CFR Part 262, the manifest regulations. In addition to the manifest requirements, Subpart E also includes requirements for recordkeeping and reporting including operating records, biennial reports, unmanifested waste reports and reports on releases, ground-water contamination and closure. Records and reports provide the regulating authority information used in assessing compliance with the hazardous waste regulations. They also provide facility owners and operators, and local authorities, with information which may be used in responding to emergencies.

INTERIM STATUS (PART 265) TECHNICAL REQUIREMENTS

The objective of the interim status technical requirements is to minimize the potential for environmental and public health threats resulting from hazardous waste treatment, storage, and disposal at existing facilities waiting to receive an operating permit. There are two groups of interim status requirements:

- General standards that apply to several types of facilities
- Specific standards that apply to a waste management method.

An owner or operator of an interim status facility can find the applicable technical requirements in Subparts F through R of 40 CFR Part 265.

GENERAL STANDARDS

The general standards cover three areas:

1) Ground-water monitoring requirements (Subpart F)
2) Closure, post-closure requirements (Subpart G)
3) Financial requirements (Subpart H).

SUBPART F - GROUND-WATER MONITORING

Ground-water monitoring is only required of owners or operators of a surface impoundment, landfill, land treatment facility and some waste piles used to manage hazardous waste. The purpose of these requirements is to assess the impact of a facility on the ground water beneath it. Monitoring must be conducted for the life of the facility except at land disposal facilities, which must continue monitoring for up to 30 years after the facility has closed. The interim status ground-water monitoring program consists of:

1) Development and installation of a monitoring system
2) Background monitoring
3) Routine monitoring and evaluation
4) Conducting assessments
5) Reporting requirements.

Development and Installation of Monitoring System

The ground-water monitoring program outlined in the regulations requires a monitoring system of four wells to be installed, one upgradient from the waste management unit and three downgradient. (It is important to note that these numbers are the minimum required.) The downgradient wells must be placed so as to intercept any waste migrating from the unit, should such a release occur. The upgradient wells must provide data on ground water that is not influenced by waste coming from the waste management unit (called background data). If the wells are properly located, comparison of data from upgradient and downgradient wells should indicate if contamination is occurring.

Background Monitoring

Once the wells have been installed the owner or operator monitors them for 1 year to establish background concentrations for selected chemicals. These data form the basis for all future data comparisons. There are three sets of parameters for which background concentrations are established:

- Drinking water parameters
- Ground-water quality parameters
- Ground-water contamination parameters.

Routine Monitoring and Evaluation

Following the establishment of background levels, routine monitoring begins. Routine monitoring examines ground water for elevated levels of indicator constituents which suggest that contamination may be occurring. Semi-annually, the wells must be sampled for the ground-water contamination indicator parameters. Annually, they are monitored for ground-water quality indicator parameters. Drinking water parameters are not monitored routinely. The results of routine monitoring are compared to the background values and tested statistically to determine if significant increases (or decreases in the case of pH) have occurred in the indicator parameters. If comparisons show a difference then the Regional Administrator must be notified within 7 days and an assessment program instituted.

Assessment Program

Only when contamination is suspected does the owner or operator implement a ground-water assessment program to determine if hazardous waste is actually entering ground water. The assessment program, based on a previously developed plan, requires the owner or operator to determine what is contaminating the ground water, the extent of contamination, and the rate of the contaminant migration. Within 15 days of conducting this assessment, a report on ground-water quality must be submitted to the Regional Administrator. If the results of the ground-water assessment show no contamination by hazardous wastes, then the owner or operator resumes routine monitoring for the indicator parameters. However, if the assessment shows hazardous waste contamination, then the owner or operator must continue assessing the extent of ground-water contamination quarterly until the facility is closed or further monitoring is required as a result of the permitting process. If the assessment was instituted during the period after a facility is closed (during post-closure care), the owner or operator need not continue assessing ground-water contamination beyond the initial assessment.

Reporting Requirements

Several ground-water monitoring reports are required. During the first year when initial background concentrations are being established, a report on each quarterly well analysis must be submitted. From the second year on, an annual report must be submitted providing the results of monitoring for:

- Indicators of ground-water contamination
- Well elevations
- Changes in background levels
- Ground-water contamination assessments.

All or part of the ground-water monitoring requirements may be waived if the owner or operator can demonstrate that there is a low potential for migration of hazardous waste from the facility. An owner or operator may also use an alternate ground-water monitoring system if, given the facility's unique situation, the one prescribed in the regulations is not capable of yielding unbiased samples.

SUBPART G - CLOSURE, POST-CLOSURE

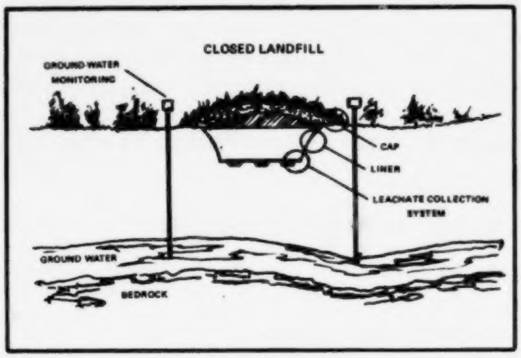
Closure is the period when wastes are no longer accepted, during which owners or operators of TSD facilities complete treatment, storage and disposal operations, apply final covers to or cap landfills, and dispose of or decontaminate equipment, structures and soil. Post-closure, which applies only to disposal facilities, is the 30-year period after closure during which owners or operators of disposal facilities conduct monitoring and maintenance activities to preserve and look after the integrity of the disposal system.

The purpose of the closure and post-closure requirements is to ensure that all facilities are closed in a manner that (1) minimizes the need for care after closure and (2) controls, minimizes, or eliminates the escape of waste, leachate, contaminated rainfall or waste decomposition products to ground or surface waters and the atmosphere. The following discussion focuses on the general closure, post-closure requirements.

Closure

An owner or operator must develop a plan for closing the facility and keep it on file at the facility until closure is completed and certified. This plan must include:

- A description of how the facility will be closed
- An estimate of the maximum amount of waste the facility will handle
- A description of the steps needed to decontaminate equipment during closure
- An estimate of the year of closure
- A schedule for closure.



The plan may be amended at any time during the active life of the facility. Furthermore, the plan must be amended whenever design and operation changes occur which affect the closure plan. Prior to closure the plan is submitted to the Regional Administrator for approval. The Administrator, in turn, must provide both the owner or operator, and the public, an opportunity to comment on the plan. Following the comment period, the Administrator must make a decision to approve, modify or disapprove the plan. Closure activities occur according to a timetable outlined in the regulations. This timetable is subject to change by the Regional Administrator.

During closure the owner or operator must treat, remove from the site, or dispose of onsite, all hazardous wastes in accordance with the approved closure plan. Once closure is completed, the owner or operator certifies that the facility has been properly closed. As part of closure activities, a survey plat indicating the location and dimensions of landfill cells or other disposal areas is submitted to the local land authority and the Regional Administrator. This plat serves the purpose of preserving a record of the TSD that can be referenced in future years. A notation on the deed to the facility property must also be made to notify potential purchasers of the property that the land was used to manage hazardous waste.

Post-Closure

Post-closure is required for disposal facilities. When a disposal facility is closed, it must be monitored for 30 years to ensure the integrity of any waste containment systems and to detect contamination. Post-closure care consists of at least the following:

- Ground-water monitoring and reporting

- Maintenance and monitoring of waste containment systems
- Security.

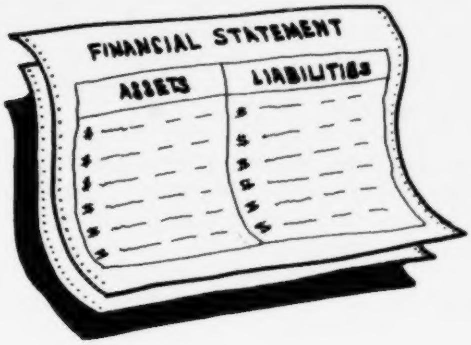
Like the closure requirements, a post-closure plan outlining activities is developed and kept at the facility until post-closure care begins. This plan may be amended at any time, and an amendment is required if there is any change that affects the plan. Post-closure plans are submitted and reviewed in the same manner as closure plans.

SUBPART H - FINANCIAL REQUIREMENTS

Financial requirements were established to assure that funds are available to pay for closing a facility, for rendering post-closure care at disposal facilities, and to compensate third parties for bodily injury and property damage caused by sudden and non-sudden accidents related to the facility's operation (States and the Federal Government are exempted from abiding by these requirements). There are two kinds of financial requirements:

1) Financial assurance for closure/post-closure
2) Liability coverage for injury and property damage.

Financial Assurance



The first step owners and operators must take in meeting the financial assurance requirements is to prepare written cost estimates for closing their facilities. If post-closure care is required, a cost estimate for providing this care must also be prepared. These cost estimates must reflect the actual cost of conducting all the activities outlined in the closure and post-closure plans and are adjusted annually for inflation. The cost estimate for closure is based on the point in the facility's operating life when closure would be the most expensive. Cost estimates for post-closure monitoring and maintenance are based on projected costs for the entire post-closure period.

Following the preparation of the cost estimates the owner or operator must demonstrate to EPA the ability to pay the estimated amounts. This is known as financial assurance. Six mechanisms for guaranteeing financial assurance to assure EPA that funds are available for closure and post-closure activities are described in the regulations. All six mechanisms are adjusted annually for inflation, or more frequently, if cost estimates change. The six mechanisms are:

- Trust Fund
- Surety Bond

- Letter of Credit
- Closure/Post-Closure Insurance
- Corporate Guarantee for Closure
- Financial Test.

The first three mechanisms can be used in conjunction with each other to meet the financial assurance requirements. An owner or operator may also use one of the six mechanisms to meet the financial requirements of multiple facilities.

When an owner or operator selects a trust fund for financial assurance, he is placing money into a special account. Annual payments must be made into this account for either 20 years or the remaining operating life of the facility, whichever is shorter. During this "pay-in" period, as it is called, deposits must equal the current cost estimate minus the current value of the trust fund, divided by the number of years in the pay-in period. Thus, the trust fund should contain a sum equal to the cost estimate at the end of the pay-in period.

If either a surety bond, a letter of credit or closure/post-closure insurance is selected as the assurance mechanism, the owner or operator is purchasing a third-party guarantee that sufficient funds will be available for closure/post-closure activities. The corporate guarantee mechanism works on this same principle. The parent company that owns the facility may provide a written guarantee that sufficient funds are available.

The last type of assurance mechanism works on yet a different principle. The owner or operator of a facility can assure, through means of a financial test, that sufficient funds exist within the company to pay for closure/post-closure activities. The financial test is also used to test the financial strength of a parent company's "corporate guarantee."

A facility may use State financial mechanisms to meet the financial assurance requirements, if the Regional Administrator determines that they are equivalent to those just discussed. A State mechanism may be used exclusively or in combination with the Federal mechanisms to achieve the full level of assurance that is required.

Liability Coverage

An owner or operator is financially responsible or liable for bodily injury and property damage to third parties caused by a sudden accidental occurrence or a non-sudden accidental occurrence due to operations at a facility. Sudden occurrences are usually due to an accident, such as an explosion or fire. Non-sudden occurrences take place over a long period of time and include ground-water and surface-water contamination. Separate liability coverage for each of these two types of occurrences must be obtained. A summary of what is required is discussed below.

Sudden Accidental Occurrences

An owner or operator of a TSD must have liability coverage for at least $1 million per occurrence with an annual aggregate of at least $2 million, exclusive of legal defense costs. This liability coverage may be demonstrated in one of three ways, by:

- Obtaining liability insurance
- Passing a financial test
- Using both the financial test and insurance.

Non-Sudden Accidental Occurrences

Only an owner or operator of a surface impoundment, landfill, land treatment facility, or group of such facilities, must maintain liability for non-sudden accidental occurrences. They must maintain at least $3 million per occurrence with an annual aggregate of at least $6 million, exclusive of legal defense costs. Liability coverage may be demonstrated in the same three ways as sudden liability is demonstrated.

SPECIFIC STANDARDS

This section of the regulations, covering Subparts I through R of 40 CFR Part 265, consists of requirements tailored to ten specific waste management methods:

- Containers
- Tanks
- Surface impoundments
- Waste piles
- Land treatment
- Landfills
- Incinerators
- Thermal treatment

- Chemical, physical, and biological treatment
- Underground injection.

While the requirements are facility-specific, there are common elements in each of them. These are:

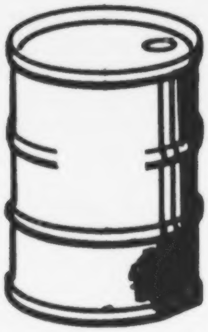
- Waste analysis
- Monitoring and inspection
- Closure/post-closure
- Recordkeeping
- Requirements for ignitable, reactive and incompatible wastes
- General operating requirements.

The first five elements have the same objectives as the corresponding general standards discussed earlier, except that additional requirements have been added to the specific standards for each waste management method, e.g., an owner or operator of a tank, in addition to developing an inspection plan, must inspect the tank for cracks or signs of leakage. The method-specific requirements for the five elements are beyond the scope of an orientation manual, but can be found in the regulations (40 CFR Part 265, Subparts I through P). The last element, general operating requirements, which has no equivalent in the general standards section of the regulations, is described in this section.

The general operating requirements specify operating procedures for each waste management method. These operating procedures are the tools used by EPA to assure that wastes are properly managed, and thus are key to the interim status requirements. The operating requirements for each of the ten waste management methods are discussed below.

SUBPART I - CONTAINERS

Drums and containers are a frequently used method of accumulating and storing wastes. In the past, persons using waste drums often put them somewhere out of sight, without any further concern about what would eventually happen to the wastes. The drums eventually weathered and corroded, releasing their contents and posing threats to human health and the environment. EPA recognized that elementary and straightforward precautions eliminated these problems. The container regulations require nothing more than simple management practices, including:



- Using containers in good condition. Wastes in leaking or damaged containers must be recontainerized.
- Assuring the compatability of the waste with the container. This is to prevent impairing the ability of the container to hold wastes.
- Handling containers properly to prevent ruptures and leaks.
- Preventing the mixture of incompatible wastes.
- Inspections to assess container condition.

SUBPART J - TANKS

At the time this manual was published, new tank regulations had been proposed but not finalized. As proposed these regulations are more stringent than the requirements described herein.

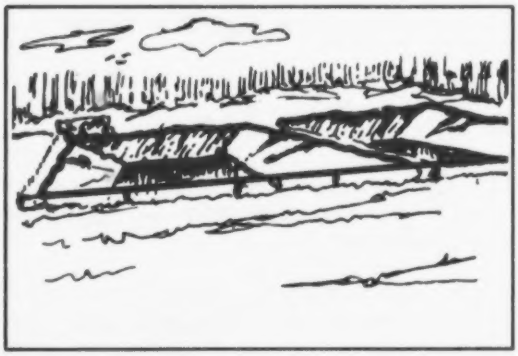
Tanks, which are stationary devices designed to contain an accumulation of hazardous waste and constructed primarily of non-earthen materials, are regulated in much the same way as containers. Persons using tanks, either to store or treat wastes, must manage the tanks to avoid leaks, ruptures, spills and corrosion. This includes using freeboard or a containment structure (e.g., dike or trench) to prevent and contain escaping wastes, and having a shutoff or bypass system installed to stop liquid from flowing into a leaking tank.

SUBPART K - SURFACE IMPOUNDMENTS

A surface impoundment is a depression or diked area (e.g., pond, pit or lagoon) used for storage, treatment and disposal, with the following characteristics:

- Open on the surface
- Designed to hold an accumulation of hazardous waste in liquid or semisolid form.

Great concern has arisen regarding the use of surface impoundments for managing hazardous wastes because wastes deposited in them tend to escape. The pressure of the liquids forces the contents to flow downwards into surrounding areas, resulting in contamination, especially of sub-surface waters. The initial requirements established for surface impoundments in interim status were not adequate to prevent contamination. They concentrated on general operating requirements to prevent overtopping (2 feet of freeboard was required) and containment of liquids (dikes were required to have protective covers, such as grass or



Surface Impoundment

rock to preserve their structural integrity). Liners to prevent leakage and ground-water monitoring were not required because it was deemed impractical and infeasible by EPA for all surface impoundments to be retrofitted for the duration of the interim period before permitting. Congress, however, established minimum technological requirements for interim status surface impoundments in HSWA.

HSWA increases the level of leak protection required at surface impoundments. Existing surface impoundments in interim status must retrofit and install double liners, leachate collection systems, and monitor for ground-water contamination by November 8, 1988, or stop receiving, treating or storing hazardous waste. Surface impoundments that come under Subtitle C regulation due to additional wastes being considered hazardous have 4 years from the date the new wastes are added to meet the new requirements. Until November 8, 1986, owners and operators may apply for variances from these requirements if their impoundments are not located within 1/4 mile of a drinking water well, and have at least one liner (not clay) that is not leaking and is in compliance with the Part 264 ground-water monitoring requirements. Variances may also be granted to certain waste-water treatment impoundments, impoundments designed, located and operated to prevent leakage, and impoundments in the process of retrofitting due to enforcement action. If any of the exempted impoundments are likely to leak or begin to leak, they must be retrofitted to meet the minimum requirements.

New surface impoundments, replacement or lateral expansions of surface impoundments applying for a permit after November 8, 1984, must meet the minimum technological requirements added to Section 3004(o) of the Act by HSWA. These requirements are:

- The installation of two or more liners
- A leachate collection system between the liners
- Ground-water monitoring.

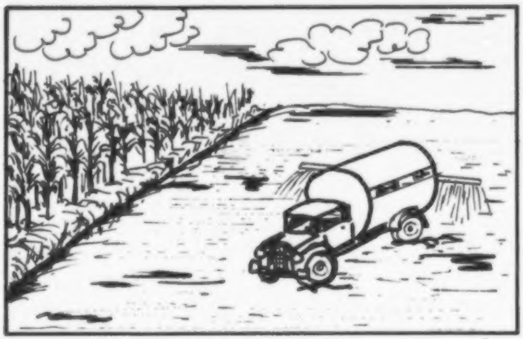
Variances for these requirements may be given by the Administrator if the owner or operator demonstrates that alternative design and operation, together with location characteristics, will prevent migration of hazardous constituents into groundwater.

SUBPART L - WASTE PILES

An owner or operator of a waste pile, used for treatment or storage of a non-containerized accumulation of solid, non-flowing hazardous waste, is given a choice regarding management requirements. He may comply with either the waste pile or landfill requirements. Waste piles used for disposal, however, must comply with the requirement for landfills. The requirements for managing storage and treatment waste piles involve protecting the pile from wind dispersion. If hazardous leachate or run-off is generated, control systems must be constructed, operated and maintained.

SUBPART M - LAND TREATMENT

Land treatment, the process of using the land or soil as a medium to simultaneously treat and dispose of hazardous waste, is highly regulated because it presents potential risks in the absence of operational controls. These risks arise because land treatment involves the direct application of hazardous waste to the land surface.



Land Treatment

An owner or operator may not place hazardous waste in or on a land treatment facility unless the waste can be made less hazardous or non-hazardous. Run-on and run-off collection and management systems must also be installed at the unit. Monitoring of the soil beneath the treatment area and comparing it to data on background concentrations of constituents in untreated soils are required to detect vertical migration of hazardous wastes. In addition, waste analyses must be conducted prior to placing wastes in or on the land to determine:

- If any substance in the waste is EP toxic
- The concentration of hazardous waste constituents
- The concentration of arsenic, cadmium, lead and mercury, if food-chain crops are grown on the land.

The requirements prohibit growing food-chain crops in a treated area containing arsenic, cadmium, lead, mercury or other hazardous constituents. This prohibition may be waived if it is demonstrated that such elements or constituents would not be transferred to the food portion of the crop or, if transferred, would not occur in concentrations greater than would be expected in an identical crop grown on untreated soil in the same region. If food-chain crops are grown during post-closure they must be raised in accordance with the requirements established in the regulations.

The owner or operator must continue to monitor soil, maintain run-on and run-off management systems, and control wind dispersal after closure. In addition, access to the treatment unit must be restricted.

SUBPART N - LANDFILLS

Landfilling historically is the cheapest, and thus preferred, means of disposing of hazardous waste. Until the last

decade, landfilling practices often focused only on burying the waste to get it out of sight and on the control of surface problems such as blowing litter. Experiences at Love Canal in New York and other burial operations have demonstrated the potential for severe human health and environmental impacts from improper landfilling.

Many argue that, because some of these wastes remain hazardous for very long periods, they should not be landfilled at all. EPA agrees in principle that it is better to destroy or recycle hazardous wastes than to landfill them, but the fact remains that, for the foreseeable future, land disposal is necessary because it is technically infeasible at present to recycle, treat, or destroy all hazardous waste. A number of techniques, however, are available for reducing potential adverse health and environmental effects arising from landfills.

The problems that hazardous waste landfills have presented -- and that interim status standards address -- can be divided into two broad classes. The first class includes fires, explosions, production of toxic fumes, and similar problems resulting from the improper management of ignitable, reactive, and incompatible wastes. To deal with these problems, owners or operators are required to analyze their wastes to provide enough information for their proper management. They must also control the mixing of incompatible wastes in landfill cells. Furthermore, ignitable and reactive wastes may be landfilled only when they are rendered unignitable or non-reactive.

The second class of problems presented by landfills concerns the contamination of surface and ground waters. To deal with these problems interim status regulations require: diversion of "run-on" (water flowing over the ground onto active portions of the facility) away from the active face of the landfill; treatment of any liquid wastes or semi-solid wastes so that they do not contain free liquids; proper closure (including a cover) and post-closure care to control erosion and the infiltration of rainfall; and crushing or shredding most landfilled containers so that they cannot later collapse leading to subsidence and cracking of the cover. In addition, the interim status regulations for landfills require ground-water monitoring to detect contamination, and the collection of rainwater and other run-off from the active face of the landfill to control surface water pollution. Segregation of waste, such as acids, which would mobilize, solubilize, or dissolve other wastes or waste constituents also is required.

Following promulgation of the interim status regulations, Congress determined that existing requirements for land disposal (both interim and permit), were inadequate to protect health and the environment and adopted the position of discouraging land disposal. This stance is reflected in HSWA. Specifically, no bulk or non-containerized liquid hazardous waste, non-hazardous liquid waste, or hazardous waste containing free liquids can be disposed of in either an interim or permit status landfill. This is to prevent the formation of hazardous leachate that could migrate and cause surface- or ground-water contamination. An exemption to the ban on disposing of non-hazardous liquid wastes may be obtained if the only reasonably available disposal method for such liquids is a landfill or unlined surface impoundment which may already contain hazardous wastes and which will not present a risk of contamination to underground sources of drinking water. Containers holding free liquids also can be placed in a landfill if the liquid has been solidified or decanted, or the container is very small, e.g., an ampule. Finally, small containers in overpacked drums containing liquids (lab packs) may, if properly prepared, be placed in a landfill. In addition to the ban on liquids, expanded or replaced interim status landfills are required to install double liners and leachate collection systems.

SUBPART O - INCINERATORS

Incineration, the thermal destruction of primarily organic hazardous waste using flame combustion, can reduce large volumes of waste materials to non-toxic gaseous emissions. The interim status incinerator requirements are only general operating methods, including:

- Achieving normal steady-state combustion conditions before wastes are introduced
- Combustion and emission monitoring.

SUBPART P - THERMAL TREATMENT

Incineration is only one type of management process that can be used to thermally treat hazardous waste. Less conventional methods, such as molten salt pyrolysis, calcination, wet air oxidation, and microwave discharge, are regulated under this Subpart. Owners or operators who thermally treat hazardous wastes (other than incinerators) must operate the unit following the same requirements applied to an incinerator. The difference is that the thermal treatment standards prohibit open burning of hazardous waste except for the detonation of explosives.

SUBPART Q - CHEMICAL, PHYSICAL, AND BIOLOGICAL TREATMENT

Treatment, although most frequently conducted in tanks, surface impoundments, incinerators and on land treatment facilities, can also be conducted in other ways through processes such as distillation, centrifugation, reverse osmosis, ion exchange, and filtration. Because there are many different types of treatment processes, and because the processes are frequently waste-specific, EPA has not attempted to develop detailed regulations for any particular type of process or equipment. Instead, general requirements have been established to assure safe containment of hazardous wastes. In most respects, these other treatment methods are very similar to using tanks for treatment; therefore, they are essentially regulated the same way. The requirements that must be met concern avoiding equipment or process failure that could pose a hazard, e.g., reagents or wastes that could cause equipment or a process to fail must not be used in treatment. In addition, safety systems to shut down waste inflow in case of a malfunction must also be installed in continuous flow operations.

SUBPART R - UNDERGROUND INJECTION

Underground injection is the disposal of fluids underground, through a well. Specific requirements for owners and operators of underground injection facilities have not been established under RCRA. Owners and operators of these facilities must meet the general standards outlined in Subparts A through E of 40 CFR. They are not required to meet RCRA closure/post-closure or financial requirements (Subparts G and H of 40 CFR Part 265). However, HSWA in Section 7010 prohibits the disposal of hazardous waste by underground injection into or above a formation within 1/4 mile of an underground source of drinking water.

PERMIT (PART 264) TECHNICAL REQUIREMENTS

The permitting standards are more extensive than the general management practices detailed in the interim status standards, especially in two areas: 1) they require an owner or operator to take corrective action if ground-water contamination is detected, and 2) they compel the owners and operators of the different waste management methods to design their management units to prevent the release of hazardous waste. The permit standards in 40 CFR Part 264 also differ from the interim status standards in that they are only a blueprint for the requirements applied to TSDs. The specific requirements an owner or operator must comply with are developed for each facility by permit writers, based on their "best engineering judgment" (BEJ) and the requirements of 40 CFR Part 264. Such requirements are then incorporated into the facility's operating permit. For example, ground-water monitoring requirements are found in 40 CFR Part 264 but the actual parameters that must be monitored for are specified in each permit. Thus, although the technical requirements for permits are discussed here, each facility's permit must be consulted for the requirements an owner or operator must abide by.

The permit standard technical requirements are structured similarly to the interim status technical requirements. They too are divided into two groups:

- General standards
- Specific standards.

Because many of the interim status technical requirements carry over as permit requirements, the remainder of this chapter describes only these major provisions of Subparts I through O of 40 CFR Part 264 that are not found in, or differ from, Subparts I through O of 40 CFR Part 265.

GENERAL STANDARDS

The general standards cover three areas:

1) Ground-water monitoring requirements (Subpart F)

2) Closure/Post-closure requirements (Subpart G)

3) Financial requirements (Subpart H)

The ground-water monitoring requirements are discussed below. Closure/post-closure and financial requirements for permitted facilities are similar to the corresponding requirements under interim status. Thus, they are not repeated here.

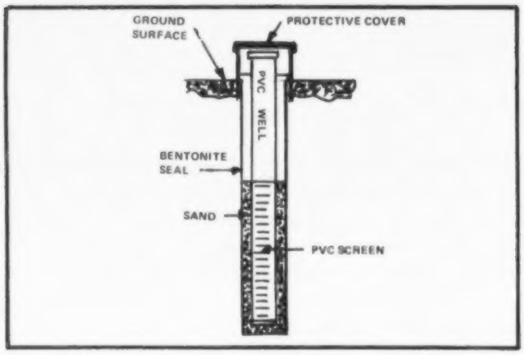
SUBPART F - GROUND WATER PROTECTION

The ground-water protection requirements for permitted facilities are more specific than those found under interim status although they apply to the same TSDs (surface impoundments, waste piles, land treatment units and landfills). They also differ by requiring the owner or operator to clean up any ground-water contamination. There are three parts to the ground-water requirements: a detection monitoring program, a compliance monitoring program, and a corrective action program.

Detection Monitoring

Detection monitoring is conducted to determine if hazardous wastes are leaking from a TSD. Detection activities are similar to those outlined under interim status, including background monitoring and semi-annual monitoring for indicator parameters. Monitoring is conducted at a compliance point specified in the permit. This point is located at the edge of the waste management area, best envisioned as an imaginary line on the outer limit of one or a group of disposal units. The indicator parameters and constituents that must be monitored are specified in the permit. If leakage is detected, then the owner or operator must institute a compliance monitoring program and establish ground-water protection standards.

Compliance Monitoring



Ground-Water Monitoring Well

The objective of the compliance monitoring program is to evaluate the concentration of certain hazardous constituents in ground water to determine if ground-water contamination is occurring. Each permit specifies constituents, and their concentration limits, for which owners or operators must monitor. The constituents are those selected from Appendix VII of Part 261 that could possibly originate from the TSD. The ground-water protection standards can be:

- Background levels
- The values in Table 1 of Part 264.94, or
- Alternate concentration limits (ACL) established by the Regional Administrator.

If compliance monitoring indicates any statistically significant increase in the concentration limits for those hazardous constituents specified in the permit, then corrective action must be instituted.

Corrective Action

The objective of the corrective action program is to bring the facility contaminating ground water into compliance. This is achieved by the owner or operator's removing the hazardous waste constituents from the ground water or treating the ground water in place. The permit details the specific actions to be taken to remove the contamination.

SPECIFIC STANDARDS

The facility-specific standards cover the following waste management methods:

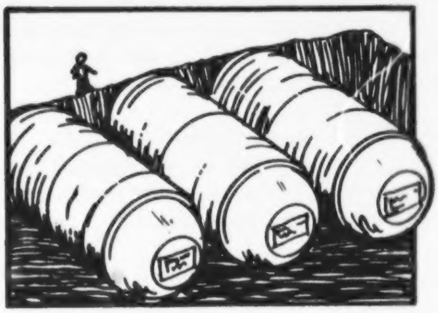
- Containers
- Tanks
- Surface impoundments
- Waste piles
- Land treatment
- Landfills
- Incinerators.

Note that there are no corresponding 40 CFR Part 264 facility-specific standards for underground injection, thermal treatment, or chemical, physical, and biological treatment.

SUBPARTS I & J - CONTAINERS AND TANKS

Permit requirements for containers and tanks are very similar to the interim status requirements, with the following exceptions:

- Containers must be placed in a containment system that is capable of containing leaks and spills. This system must have sufficient capacity to contain 10 percent of the volume of all containers or the volume of the largest container, whichever is greater.
- When closing a container, all hazardous waste and hazardous waste residues must be removed. In addition, any contaminated equipment or soil must be decontaminated or removed.
- Tanks must be designed and constructed of sufficient strength and have adequate controls to assure that they do not collapse or rupture. The design of tanks is reviewed by EPA to assure that tank shell thickness follows prescribed design standards.(Note that the tank regulations are currently under revision).



SUBPART K - SURFACE IMPOUNDMENTS

Prior to HSWA, the permit standards for surface impoundments required that a liner be designed, constructed and installed to prevent migration of wastes out of the impoundment. In addition, double-lined surface impoundments meeting certain requirements were not subject to ground-water protection requirements. However, HSWA established minimum technology standards for land disposal facilities that are more stringent because existing requirements were considered inadequate to prevent hazardous waste from entering the environment. Surface impoundments permitted after November 8, 1984, including replacement units and lateral expansions, must install double liners, leachate collection systems and monitor ground water. Waivers from this requirement are allowed if the owner or operator can show that an alternate design or location is as effective as the liners and leachate collection system. Monofill surface impoundments containing foundry wastes and meeting certain conditions may also be issued a waiver. HSWA also deleted the variances from ground-water monitoring standards for double-lined impoundments.

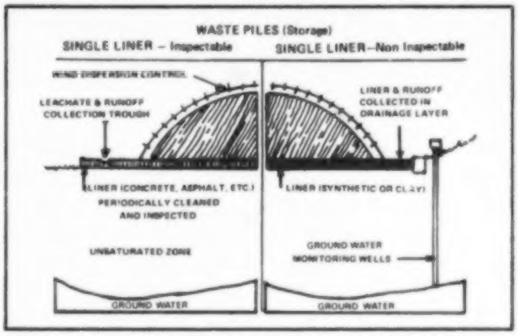
In addition to the new HSWA minimum technology requirements, the old requirements calling for proper design, construction and operation of surface impoundments still apply. These requirements include preventing liquids from escaping from the top (overfilling, run-on) or sides (dikes) of surface impoundments. Liners must be constructed properly, of appropriate materials and thickness.

During construction and installation, liners and cover systems must be inspected for uniformity, damage, and imperfections. After installation all units must be examined weekly to ensure that the integrity of the unit is maintained and that no potentially hazardous situations have developed. If the liquid in a surface impoundment suddenly drops for no apparent reason or a dike leaks, the surface impoundment must be removed from service and, if the leak cannot be stopped, the impoundment must be emptied.

The closure and post-closure requirements for surface impoundments include removing or decontaminating all waste residues and properly covering and maintaining the impoundment to prevent leaks from occurring.

SUBPART L - WASTE PILES

Unlike waste piles regulated under interim status, permitted waste piles must have a liner designed and constructed to prevent any migration of wastes out of the pile into adjacent soil or waters. A leachate collection system immediately above the liner also must be installed. A waste pile that is covered or protected so that neither run-off or leachate is generated, however, does not have to meet these requiremen


WASTE PILES (Storage)
SINGLE LINER – Inspectable
SINGLE LINER–Non Inspectable
WIND DISPERSION CONTROL
LEACHATE & RUNOFF COLLECTION TROUGH
LINER & RUNOFF COLLECTED IN DRAINAGE LAYER
LINER (CONCRETE, ASPHALT, ETC.) PERIODICALLY CLEANED AND INSPECTED
LINER (SYNTHETIC OR CLAY)
UNSATURATED ZONE
GROUND WATER MONITORING WELLS
GROUND WATER
GROUND WATER

Waste Piles

HSWA created two new requirements for waste piles. The first requirement allows a waste pile to obtain a waiver from ground-water protection regulations if the waste pile is "an engineered structure" that the Administrator finds does not receive or contain liquid waste, does exclude liquids, and has a multiple leak detection system that prevents waste migration. The second HSWA requirement mandates owners and operators of new waste piles to install an approved leak detection system.

SUBPART M - LAND TREATMENT

These standards require that an owner or operator establish a land treatment program to ensure that hazardous constituents placed in or on the treatment zone are degraded, transformed or immobilized within the treatment zone. The elements of this program are specified in the permit, including:

- Which wastes can be treated
- Design and maintenance of the land treatment unit to maximize treatment
- Soil monitoring

- The hazardous constituents that must be degraded, transformed or immobilized by treatment
- Size of the treatment zone.

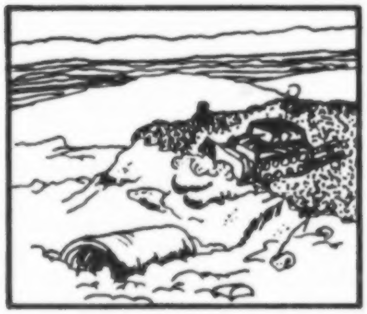
The Administrator will also specify in the permit the design and operating requirements the owner and operator must use in the construction and maintenance of the land treatment unit.

Prior to the application of waste a treatment demonstration must be conducted to verify that the hazardous constituents are adequately treated by the unit. The Regional administrator may allow the growth of food-chain crops in or on the treatment zone only if the owner or operator meets certain conditions outlined in 40 CFR Section 264.2.

The permitting standards for landfills include extensive unsaturated zone monitoring requirements. A monitoring program must be established to determine if hazardous constituents are migrating out of the treatment zone. Based on a sampling program outlined in the permit, if migration is detected a permit modification must be submitted outlining changes in operating practices to maximize the success of treatment.

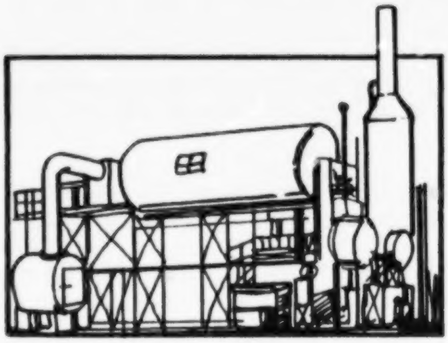
SUBPART N - LANDFILLS

Landfills, like surface impoundments, are regulated closely because of the potential impacts they may have on human health and the environment. HSWA added several provisions that owners or operators of landfills must meet. A new landfill unit (including expansions or replacements) must install two or more liners, two leachate collection systems (one above and one between liners) and conduct ground-water monitoring. The variance from ground-water requirements is the same as that described under surface impoundments and waste piles -- only engineered structures that exclude liquids and prevent liquid migration may be exempted.



Another HSWA amendment affecting landfills is the "liquids in landfills restriction." Bulk or non-containerized liquids (both hazardous and non-hazardous) are prohibited from placement in a landfill. In addition, the land disposal of containerized liquid hazardous waste or free liquids in containerized hazardous waste must be minimized. If the only reasonable alternative for disposing of non-hazardous liquids is a non-Subtitle C landfill or unlined impoundment that contains or may contain hazardous waste, then the Administrator may allow its disposal in a landfill.

SUBPART O - INCINERATORS



By either conducting a trial burn or using alternate data, an owner or operator must determine the operating methods for his incinerator that will result in its meeting the following performance standards:

- 99.99 percent of each principal organic hazardous constituent (POHC) specified in the permit must be destroyed or removed by the incinerator
- Hydrogen chloride (HCL) emissions must be minimized
- Particulate emissions must be limited.

The permit will specify the composition of waste feed that may be incinerated. Different waste feeds may be incinerated only if a new permit or permit modification is obtained. In addition, to realize the required destruction rates, an incinerator may only be fed hazardous waste once it has achieved normal operating conditions. While incinerating hazardous waste, the combustion process and equipment must be monitored and inspected to avoid potential accidents or incomplete combustion. The Regional Administrator may also ask for a sampling of the waste and exhaust emissions to verify that the operating requirements in the permit are being met.

SUMMARY

Treatment, storage, and disposal facilities (TSDs) are the last link in the cradle to grave hazardous waste management system. In order to handle hazardous wastes TSDs must obtain a permit and abide by TSD regulations.
TSDs fall into two categories, those:

- In interim status
- That are permitted.

Interim status was developed by Congress to allow certain owners and operators of facilities in existence on November 19, 1980 (or brought under Subtitle C regulation after this date due to an amendment), to continue operating as if they have a permit until their permit application is issued or denied.

There are two sets of TSD regulations:

- Interim Status Standards - These are "good housekeeping" requirements, e.g., tanks should be used properly, found in 40 CFR Part 265.

- Permit Standards - There are facility-specific "design and operating" requirements incorporated into the permit, e.g., tanks storing hazardous waste must be designed to industry specifications found in 40 CFR Part 264. The permit standard language in the regulations is general and serves as a guideline for permit writers in setting the specific design and operating requirements through "best engineering judgment."

Both TSD regulations are composed of:

- Administrative and Non-Technical Requirements- These ensure that owners or operators of TSDs establish the necessary procedures and plans to run a facility properly and to handle any emergencies or accidents. They cover:
    - Who is subject to the regulations
    - General facility standards
    - Preparedness and prevention
    - Contingency plans and emergency procedures
    - Manifest system, recordkeeping and reporting
- Technical Requirements - These ensure that owners or operators operate TSDs in a way that minimizes the potential for threats to human health and the environment. Technical requirements are further broken down into:
    - General standards that apply to several types of facilities, covering:
        - Ground-water monitoring
        - Closure/Post-closure
        - Financial requirements
    - Specific standards that apply to a waste management method, covering:
        - Containers
        - Tanks
        - Surface impoundments
        - Waste piles
        - Land treatment

- Landfills
- Incinerators
- Thermal treatment (interim status standards only)
- Chemical, physical, biological treatment (interim status standards only)
- Underground injection (interim status standards only).

HSWA requires the Administrator to examine all listed hazardous wastes and some others to determine if any should be banned from land disposal. This determination is currently underway and will likely have an impact on future TSD practices.

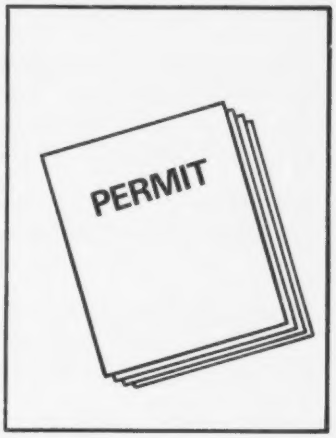
CHAPTER 5

PERMITTING

- OVERVIEW
- WHO NEEDS A PERMIT?
- SPECIAL SITUATIONS
    - OTHER ENVIRONMENTAL LAWS
    - EMRGENCIES
    - NEW INCINERATOR OR LAND TREATMENT FACILITY
- THE PERMIT PROCESS
    - THE PERMIT APPLICATION
    - ADMINISTRATIVE REVIEW OF THE PERMIT APPLICATION
    - PREPARING THE DRAFT PERMIT
    - TAKING PUBLIC COMMENT AND FINALIZING THE PERMIT
    - MODIFYING, MAINTAINING, AND TERMINATING THE PERMIT
- CHANGES DUE TO HSWA
    - RESEARCH, DEVELOPMENT, AND DEMONSTRATION PERMITS
    - WASTE MINIMIZATION
    - CORRECTIVE ACTION AT PERMITTED FACILITIES
    - EXPOSURE INFORMATION AND HEALTH ASSESSMENTS
- SUMMARY

CHAPTER 5 PERMITTING

OVERVIEW



Owners or operators of TSDs are required to obtain a permit to operate a hazardous waste management facility. Permits identify the administrative and technical performance standards to which facilities must adhere. Since all TSDs are required to have one, a permit is the key to implementing the regulations established under Subtitle C.

RCRA permits can be issued by EPA or an authorized State. Whether administered by EPA or a State, the permitting program must meet EPA standards. Indeed, one of the requirements for a State program is that it be equivalent to, no less stringent than, and consistent with the Federal program. Therefore, although this chapter describes permitting as a Federally run program, the procedures outlined apply equally to permitting programs run by authorized States. States may, however, impose regulatory requirements that are more stringent than the Federal program.

This chapter covers the entire permitting process including the:

- Universe of TSDs subject to the permitting requirements of Subtitle C
- Steps involved in permitting a TSD
- Changes in the permitting process that occurred as a result of HSWA.

WHO NEEDS A PERMIT?

Owners or operators of existing or new facilities that treat, store, or dispose of hazardous waste must obtain an operating permit under Subtitle C. There are, however, some exclusions to this requirement. These include:

- Generators who store waste on-site in tanks or containers for less than 90 days
- Farmers who dispose of their own (hazardous) pesticides on-site
- Small quantity generators
- Owners or operators of totally enclosed treatment facilities

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- Owners or operators of wastewater treatment units (tanks) and elementary neutralization units (tanks or containers)
- Transporters who store manifested wastes at a transfer facility for less than 10 days
- Persons adding absorbent material to waste in a container and persons adding waste to absorbent material in a container, provided that these actions occur at the time waste is first placed in the container
- Owners or operators of solid waste disposal facilities provided they only handle small quantity generator waste.

Note that if any of the individuals listed above treat, store, or dispose of hazardous waste in a manner not covered by the exclusion, they are subject to permitting for that activity.

Another group exempted from RCRA's permitting regulations are those individuals involved in an emergency situation, e.g., an accidental spill. In such a situation there is often insufficient time to obtain a RCRA permit for treatment or containment activities before taking necessary action. If treatment or containment activities are continued or initiated after the immediate response is complete, the person performing these activities is subject to all applicable Subtitle C permitting regulations.

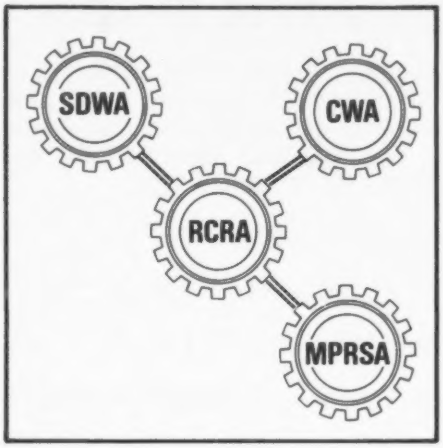
SPECIAL SITUATIONS

Included among the ranks of facility owners or operators required to obtain a permit under Subtitle C are three groups eligible for unique permits. These groups include owners or operators that:

- Have a permit under certain other environmental laws
- May have to respond to a situation which threatens human health or the environment
- Have just constructed an incinerator or a land treatment facility.

OTHER ENVIRONMENTAL LAWS

The EPA issues permits under a number of different laws. In some instances the requirements of one statute's permitting regulations are quite similar to those in another statute. To avoid duplication EPA has tried to abbreviate the



PERMIT-BY-RULE

application process for facilities that need to be permitted under two statutes. This is done through a permit-by-rule. A permit-by-rule eliminates the need for facilities to submit a full Subtitle C permit application when they are permitted under one of the statutes listed below:

- Safe Drinking Water Act (Underground Injection Control permit)
- Clean Water Act (National Pollutant Discharge Elimination System permit)
- Marine Protection, Research, and Sanctuaries Act (Ocean Dumping permit).

Facilities seeking a RCRA permit that are in compliance with one of the three permits listed above need meet only a few additional Subtitle C regulatory requirements to receive a RCRA permit. For example, an owner or operator of a barge or vessel that has an ocean dumping permit, and complies with the appropriate conditions under Subtitle C (e.g., obtaining an EPA ID number, use of the manifest system, and biennial reporting) will be permitted under RCRA.

EMERGENCIES

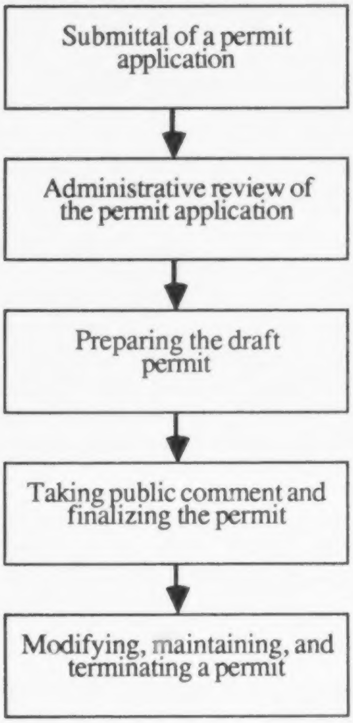
Second, in potentially dangerous situations EPA can forgo the normal permitting process. Specifically, when there is "imminent and substantial endangerment to human health or the environment" a temporary (90 days or less) emergency permit can be issued to a:

- Non-permitted facility for the storage, treatment, or disposal of hazardous waste
- Permitted facility for the storage, treatment, or disposal of hazardous waste not covered by the existing permit.

NEW INCINERATOR OR LAND TREATMENT FACILITY

Third, EPA issues permits to construct and operate new hazardous waste management facilities. Such facilities cannot be constructed until a permit is issued. There is, however, an exception to this rule. Land treatment facilities and incinerators may go through a trial period during which their ability to perform properly under operating conditions is tested. This period is called a trial burn for incinerators and a land treatment demonstration for land treatment facilities. Owners or operators of these two types of facilities are required to obtain temporary permits that are enforced while the facility is being tested. Once the facility adequately completes its test the owner or operator can apply to modify its permit to set the final operating conditions based on the data generated from these demonstrations.

THE PERMIT PROCESS


Submittal of a permit application
Administrative review of the permit application
Preparing the draft permit
Taking public comment and finalizing the permit
Modifying, maintaining, and terminating a permit

The Permit Process

All hazardous waste TSDs required to get a permit under Subtitle C go through the same basic permitting process, with the exception of facilities issued a permit-by-rule, an emergency permit, or a temporary (trial period) permit. This process includes the following five steps:

1) Submittal of a permit application
2) Administrative review of the permit application
3) Preparing the draft permit
4) Taking public comment and finalizing a permit
5) Modifying, maintaining, and terminating a permit.

There are a number of Federal laws that may affect the permit process, including the:

- Wild and Scenic Rivers Act
- National Historic Preservation Act of 1966
- Endangered Species Act
- Coastal Zone Management Act
- Fish and Wildlife Coordination Act.

When any of these laws is applicable, its procedures must be followed. For example, the Coastal Zone Management Act prohibits EPA from issuing a permit for an activity affecting land or water use in the coastal zone until the applicant certifies that the proposed activity complies with the State's Coastal Zone Management Program, and the State or its designee agrees with the certification. To get more information on these laws and their potential impacts on Subtitle C's permitting process see 40 CFR Section 270.3.

THE PERMIT APPLICATION

RCRA PERMIT
T/S/D Facility

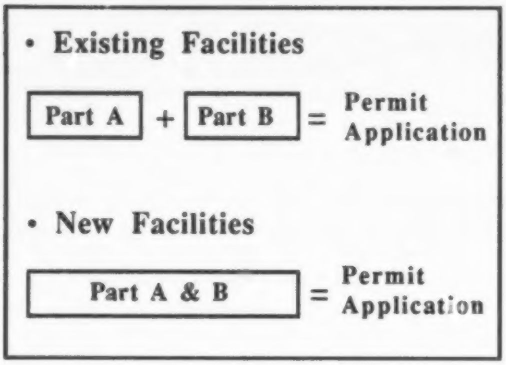
Owners or operators of facilities that fall under the permitting regulations are required to submit a comprehensive permit application that covers all aspects of the design, operation, and maintenance of the facility. Through the permit application, EPA or an authorized State receives valuable information which is used to determine whether the facility is in compliance with Subtitle C regulations and for developing a facility-specific permit.

The permit application is divided into two parts, A and B. Part A of the application is a short standard form that collects general information about a facility, e.g., name of the applicant, and a description of the activities conducted at the facility. Part B of the permit application is much more extensive than Part A. It requires the owner or operator to supply detailed and highly technical information, e.g., chemical and physical analyses of the hazardous waste to be handled at the facility. Since there is no standard form for a Part B, the owner or operator must rely on the regulations (40 CFR Parts 264 and 270) to determine what to include in this piece of the application. In addition to the general Part B information that must be submitted by all owners or operators of TSDs, there are unique information requirements that are tied to the type of facility in question.

Depending on the situation, Part A and Part B may be submitted at different times. Existing facilities (ones in operation or in the construction phase prior to November 19, 1980) submitted their Part A when applying for interim status. Their Part B can then either be voluntarily submitted or "called in" by EPA.

Due to the small number of permits issued prior to HSWA, Congress decided that it was necessary to implement a statutory timetable for Part B submittals. This timetable is included in HSWA and summarized below. Those facilities which fail to meet the call-in deadline, face losing their interim status and therefore must close.

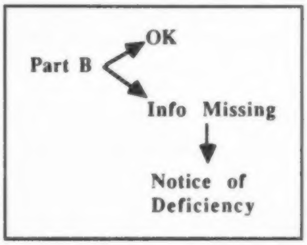
Type of Facility	Loses Interim Status on	Unless It Submits Part B by
Land disposal	Nov. 8, 1985	Nov. 8, 1985
Incinerator	Nov. 8, 1989	Nov. 8, 1986
All other	Nov. 8, 1992	Nov. 8, 1988



Under HSWA another group of facilities can submit their Part A and Part B separately. Specifically, any TSD that comes under the jurisdiction of Subtitle C due to statutory or regulatory changes must submit its Part A as soon as it becomes subject to the new requirements. The Part B for such facilities can be voluntarily submitted or called in by EPA. There is a special timetable for land disposal facilities that come under the jurisdiction of Subtitle C in this manner. They must apply for a Part B within 12 months of becoming subject to Subtitle C requirements or lose interim status.

New facilities (ones commencing operations or construction after November, 19, 1980), because they are ineligible for interim status, submit their Part A and Part B simultaneously. This submission must be made at least 180 days prior to the date on which physical construction is expected to start. The reason for this pre-construction ban is twofold. First, by not allowing the owner or operator to obtain interim status, EPA does not have to enforce environmental standards that are less stringent than those enforced at permitted facilities. Second, by requiring submittal of Parts A and B prior to construction, the owner or operator does not risk losing a substantial financial investment by building a facility that fails to receive a permit.

ADMINISTRATIVE REVIEW OF THE PERMIT APPLICATION



Once the owner or operator of a facility has submitted a complete permit application (both Parts A and B), it is reviewed, and either approved or denied by the Administrator. EPA's first step in reviewing the permit application is to determine if the owner or operator has submitted all of the required information. If the application is not complete a Notice of Deficiency Letter is sent to the owner or operator highlighting the missing information. Once the owner or operator submits this information the application is considered complete. Failure to provide this information can result in denial of the application, enforcement action, or both.

Confidentiality of Information

In some cases information contained in the permit application may be considered confidential by the owner or operator. Permit applicants often make a claim of confidentiality to protect trade secrets. In such cases, the owner or operator must make this claim known at the time of submission by following the procedures described in 40 CFR 270.12 ("confidentiality of information"). Claims of confidentiality are reviewed (by legal counsel) only after someone outside EPA requests to see the information. If a claim is substantiated, the information is treated as confidential and not released. If, on the other hand, a claim is denied, the information is made public.

Evaluating the Permit Application

After the owner or operator is informed, by letter, that his application is complete, an in-depth evaluation of the permit application begins. After the permit application is evaluated, EPA decides to either approve or deny the application. If the permit application is denied, EPA must send the owner or operator a Notice of Intent to Deny. The owner or operator, in turn, can appeal this decision to the EPA. If the application is accepted, a draft permit is prepared by EPA staff.

For facilities which submitted their permit application prior to November 8, 1984 EPA must either approve or deny the application in accordance with the following schedule set out under HSWA:

- Land Disposal Facilities -- by November 8, 1988
- Incinerators -- by November 8, 1989
- All other TSDs -- by November 8, 1992.

For facilities that submit their application after November 8, 1984, HSWA places no time limits on how long EPA can take to evaluate the application. In either case, evaluating an application is a lengthy process, and can take from 1 to 3 years.

PREPARING THE DRAFT PERMIT

A Draft Permit Consists of:

- **Technical requirements**
- **Other conditions:**
  - **General**
  - **Facility-specific**

The draft permit incorporates applicable technical requirements and other conditions pertaining to the facility's operation. These other conditions are divided into two groups -- those applicable to all permits and those applied on a case-by-case basis. Among the general permit conditions are:

- The requirement to comply with all conditions listed in the permit
- The responsibility to notify EPA of any planned alterations or additions to the facility
- The requirement to provide EPA with any relevant information requested and to allow Agency representatives to inspect the facility premises under certain conditions

- The duty to submit required reports, e.g., Unmanifested Waste Report, Biennial Report and Manifest Discrepancy Report.

The case-by-case permit conditions include:

- Compliance Schedule - This is used to bring a facility into compliance.
- Duration of Permit - A permit may be issued for any length of time that is less than or equal to 10 years. The exception is a land disposal permit which is limited to 5 years.

TAKING PUBLIC COMMENT AND FINALIZING THE PERMIT

Once the draft permit (or Notice of Intent to Deny) is completed, EPA is required to give public notice and allow 45 days for written comment. In certain cases a public hearing may be held during this time. Along with the public notice EPA must issue either a fact sheet or a statement of basis to inform concerned parties about the permitting process that is taking place. Fact sheets are prepared for every major facility and any facility subject to widespread public interest, as determined by EPA. They include detailed information pertaining to the nature of the facility, the contents of the draft permit (or Notice of Intent to Deny), and the procedures to be used in reaching the final administrative decision on the permit application. In lieu of a fact sheet, a draft permit (or Notice of Intent to Deny) must be accompanied by a statement of basis. The latter is essentially a summarized version of the fact sheet. These supporting documents are sent to the applicant and, on request, to any other interested person.

If information submitted during the initial comment period "appear(s) to raise substantial new questions concerning the permit" the Agency must re-open or extend the comment period. In this situation the Agency may also decide to revise the draft permit (or Notice of Intent to Deny).

After the comment period closes, the Administrator issues the final permit decision. This decision is binding, but may be appealed in the local U.S. Court of Appeals.

MODIFYING, MAINTAINING, AND TERMINATING THE PERMIT

Periodically each facility is inspected to determine if it has altered its operation or run into a compliance problem. Any changes or problems can give rise to one of three actions on the part of the Agency:

- Modification of permit conditions

- Revocation and reissuance of the permit
- Termination of the permit.

Furthermore, the permittee can request the Agency to undertake any one of these actions.

Modifications of Permit Conditions

There are two types of modifications that a permit can be subject to -- minor and major ones. Minor modifications include:

- Correcting typographical errors
- Allowing for a transfer of permit responsibility
- Changing the estimates of the expected year of closure.

Such modifications can be made only with the consent of the permittee.

Major modifications include:

- Major alterations to the permitted facility
- A change in the standards or regulations upon which the permit was based
- A modification of the compliance schedule.

As with minor modifications the permittee's consent is required to make a major modification. The procedures for implementing major modifications are nearly identical to those required when approving a new permit, e.g., having a public comment period.

Revocation and Reissuance of the Permit

There are two situations in which EPA can decide to revoke and reissue a permit:

- When cause exists for terminating the permit (under the circumstances described below) yet EPA decides that revocation and reissuance is a more appropriate step
- When the permit holder plans to transfer the permit.

Termination of the Permit

The regulations establish three reasons for either terminating a permit before it is up or denying a permit renewal application:

- Non-compliance by the permittee with any condition of the permit
- Failure, on the part of the permittee, to disclose in the application or during the permit issuance process any relevant information, or a permittee's misrepresentation of relevant facts at any time
- A determination that the permitted activity endangers human health or the environment and can only be regulated to acceptable levels by permit termination.

The procedures for terminating a permit are essentially the same as those used in finalizing a permit, described earlier in this section.

CHANGES DUE TO HSWA

In addition to the changes resulting from HSWA already discussed in this chapter, there are four others that deserve mention. They pertain to the issuance of research, development, and demonstration permits, waste minimization, corrective action at permitted facilities, and exposure information and health assessments.

RESEARCH, DEVELOPMENT, AND DEMONSTRATION PERMITS

EPA encourages the use of alternate treatment technologies. Recognizing that for such technologies there are usually no precedents, HSWA allows the Administrator to issue a Research, Development, and Demonstration permit to facilities which employ innovative and experimental technologies even if no permit standards for the activity are in place (Section 3005(G)).

For the purpose of expediting review and issuance of these permits the Agency may waive the usual permit application and issuance requirements, with the exception of those concerning financial responsibility and public participation. These permits are limited to 1 year and may be renewed three times.

WASTE MINIMIZATION

In accordance with RCRA's goal of reducing the amount of hazardous waste generated nationwide, HSWA requires owners or operators of permitted facilities that treat, store, or dispose of hazardous waste on the premises where such waste was generated to certify annually, that:

- There is a program in place to reduce the volume or quantity and toxicity of waste to the degree determined by the generator to be economically practicable.

- The proposed method of treatment, storage, or disposal is that method currently available to the generator which minimizes the present and future threat to human health and the environment.

CORRECTIVE ACTION AT PERMITTED FACILITIES

In order to address non-compliance through the permitting process, HSWA provides (Section 3004(u)) that any permit issued under Subtitle C must require corrective action for all releases of hazardous waste or constituents, regardless of when the waste was placed at the facility. It further requests financial assurance for the completion of such corrective action. For a complete description of corrective action authority under RCRA see Chapter 6, Enforcement.

EXPOSURE INFORMATION AND HEALTH ASSESSMENTS

In keeping with the belief that landfills and surface impoundments may pose a greater health risk than other types of disposal facilities, Congress included in HSWA the requirement that Part B permit applications for such facilities be accompanied by information on the potential for public exposure to hazardous wastes or constituents through releases from the facility. This exposure information is not part of the permit application or permit process. Rather, it is a mechanism to identify human health problems which may arise.

Once this exposure information is submitted, EPA or the authorized State makes it available to the Agency for Toxic Substances and Disease Registry (ATSDR) established under Superfund. If EPA or the authorized State feels that the release poses a substantial potential risk to human health, EPA (or the State with EPA's concurrence) can request the ATSDR to perform a health assessment and take other appropriate actions under Superfund, e.g., providing medical care and testing to exposed individuals. At a minimum the exposure information must address:

1) Reasonably forseeable potential releases from both normal operations and accidents at the facility, including releases associated with transportation to or from the facility

2) The potential pathways of human exposure to hazardous wastes or constituents resulting from the releases described in number 1 above

3) The potential magnitude and nature of the human exposure resulting from releases described in number 1 above.

SUMMARY

Permits detail the administrative and technical performance standards that TSDs must adhere to, and are thus the key to implementing Subtitle C regulations. Owners and operators of existing or new facilities must (with a few exceptions) obtain an operating permit.

Under certain circumstances owners and operators of Subtitle C facilities can obtain a unique type of permit:

- Permit-by-rule
- Emergency permit
- Temporary (trial period) permit.

The permitting process consists of five steps:

1) Submittal of a permit application
2) Administrative review of the permit application
3) Preparing the draft permit
4) Taking public comment and finalizing the permit
5) Modifying, maintaining, and terminating a permit.

The passage of HSWA affects the permitting process in a number of ways:

- Establishes a statutory timetable for Part B submittals and EPA approval or denial of certain permit applications
- Allows issuance of research, development and demonstration permits

- Requires owners and operators of permitted facilities that treat, store, or dispose of hazardous waste on the same premises where the waste was generated to certify annually that a program is in place to reduce the volume and toxicity of waste, and that the proposed method of treatment, storage and disposal minimizes threats to human health and the environment
- Provides that permits issued must require corrective action for all releases of hazardous waste or constituents
- Requires that Part B permit applications be accompanied by exposure information and health assessments.

CHAPTER 6

ENFORCEMENT

- OVERVIEW
- COMPLIANCE MONITORING
  - INSPECTIONS
- ENFORCEMENT ACTIONS
  - ADMINISTRATIVE ACTIONS
  - CIVIL ACTIONS
  - CRIMINAL ACTIONS
- AGENCY FUNCTIONS
- SUMMARY

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CHAPTER 6 ENFORCEMENT

OVERVIEW

ENFORCEMENT

The effective implementation of RCRA's regulatory programs rests on whether or not the people and companies regulated under the Act comply with its various requirements. The goals of the RCRA enforcement program are to ensure that the regulatory and statutory provisions of RCRA are met, and to compel necessary corrective action. This requires close monitoring of facility activities and quick legal action where non-compliance is detected. Facility inspections by Federal/State officials are the primary tool for monitoring compliance. When non-compliance is detected, legal action may follow. This could include the use of administrative orders, civil law suits, or criminal law suits depending on the nature and severity of the problem. The combination of effective monitoring and quick legal action is intended to reduce the number of facility owners who operate without complying with RCRA's requirements and deter violations by imposing penalties.

This chapter describes the two essential aspects of the enforcement program -- compliance monitoring and enforcement actions. It should be noted that all of the enforcement provisions detailed in this chapter are statutory, not regulatory.

COMPLIANCE MONITORING

The first phase of the enforcement program is monitoring facilities to verify their compliance with RCRA's regulatory requirements. This monitoring serves several purposes. It allows EPA and authorized States to find out which facilities are not in compliance. It also allows EPA and the States to assess the effectiveness of specific legal actions, such as administrative orders, that may have been taken against a facility. Also, the overall compliance monitoring program allows EPA to evaluate the effectiveness of State programs and to monitor nationwide compliance with RCRA. Finally, monitoring acts as a deterrent, encouraging compliance with the regulations by making non-compliers susceptible to enforcement actions.

INSPECTIONS

The primary method of collecting compliance monitoring data is the facility inspection. This is a formal visit to a facility to review records, take samples, and observe facility operations. In addition to supplying information for enforcement proceedings, inspections are used to gather data to assist EPA in the development of RCRA regulations, and to help EPA track program progress and accomplishments.

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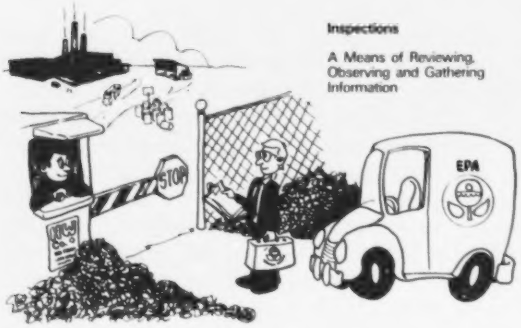

Inspections

A Means of Reviewing, Observing and Gathering Information

Compliance information also is obtained through examination of the reports that each facility is required to submit. These reports can contain information about the wastes being handled, the method of handling, and the ultimate disposition of wastes.

Inspections are carried out by State or EPA officials. In instances where criminal activity is suspected, the National Enforcement Investigations Center (NEIC) may become involved. Similarly, the Department of Transportation (DOT) may participate where waste transporters are involved. All of these agencies are authorized by RCRA to use outside contractors for the actual inspection if they so desire.

The Act provides the authority for conducting inspections under Section 3007. This Section allows EPA, an authorized State, or a representative of either of these to enter any facility that has handled hazardous waste to examine the facility's records and take samples of the wastes.

Prior to HSWA, RCRA did not mandate periodic inspections of facilities. Now all Federal- or State-operated facilities must be inspected annually. Furthermore, the Administrator must commence a program to thoroughly inspect all other Subtitle C facilities at least once every 2 years (see Sections 3007 (c), (d), and (e)). Facilities may also be inspected at any time if EPA or the State has reason to suspect that a violation has occurred. Finally, facilities are chosen for an inspection when specific information is needed to support the development of RCRA regulations.

Conducting The Inspection

Several steps are generally followed in RCRA inspections to ensure consistency and thoroughness. First, the inspecting agency reviews its records about the facility. This is to identify any likely problems that may be encountered. The second step is the actual entry onto the facility property. The inspector identifies himself and describes the nature of the inspection. In some circumstances, a court warrant may be needed to gain entry to the facility.

Steps in Conducting an Inspection:

- **Review records**
- **Enter facility**
- **Hold opening conference**
- **Conduct inspection**
- **Hold closing conference**
- **Prepare report.**

After the inspector has entered the property, an opening conference is generally held with the owner or operator to discuss the nature of the inspection and to describe the information and samples to be gathered. Following the opening conference, the actual inspection takes place. Finally, a closing conference is held with the owner or operator to respond to questions about the inspection and provide additional information.

After the facility visit is completed, a report is prepared. The report summarizes the records reviewed and contains any sampling results. Brief summary conclusions regarding inspections are tracked in some detail in the Hazardous Waste Data Management System (HWDMS) maintained by EPA.

The most important result of any inspection is the determination of whether the facility is in compliance with the regulations. If it is decided that the facility is not complying with all of the appropriate State or Federal requirements, enforcement action may be taken. These actions are discussed below.

ENFORCEMENT ACTIONS

The second phase of the enforcement program involves taking enforcement actions to bring facilities into compliance with applicable Subtitle C regulations. Another primary goal of enforcement actions is to compel monitoring and corrective action in response to both past and present releases of hazardous waste, non-hazardous waste, or hazardous constituents. EPA or an authorized State has a broad range of enforcement options including:

- Administrative actions
- Civil actions
- Criminal actions.

In each situation, a decision must be made, based on the nature and severity of the problem at the facility, about which of these is to be pursued.

ADMINISTRATIVE ACTIONS

An administrative action is non-judicial enforcement action taken by EPA or a State under its own authority. Administrative enforcement actions can take several forms ranging from informal notices of non-compliance to issuance of an administrative order accompanied by a formal public hearing. These actions tend to be less complicated than a law suit and can often be quite effective in forcing a facility to comply with regulations or to remedy a potential threat to health or the environment. Two types of administrative actions, informal actions and administrative orders, provide for enforcement response outside the court system.

Informal Actions

An informal administrative action is any communication from an agency that notifies the facility of a problem. It can take many forms, e.g., a letter or a phone call. For this type of action, the responsible agency (EPA or the State) notifies a facility that it is not in compliance with some provision of the regulations. This type of action is particularly appropriate where the violation is of a minor provision of the regulations such as a record maintenance requirement. If the owner or operator does not take steps to comply within a certain time period, a warning letter may be sent, setting out specific actions to be taken to move the facility back into compliance. The warning letter also sets out the enforcement actions that will follow if the facility fails to take the required steps.

Enforcement Options Available Under RCRA:

- **Administrative actions**
- **Civil actions**
- **Criminal actions.**

Administrative Orders

When a more severe violation is detected, or the owner or operator does not respond to an informal action, the agency can issue an administrative order. An administrative order, issued directly under the authority of RCRA, imposes enforceable legal duties. Orders can be used to force a facility to comply with specific regulations, to take corrective action, to perform monitoring, testing, and analysis, or to address a threat of harm to human health or the environment. There are four types of orders that can be issued under RCRA:

ORDER
HW Co. Inc.

- Compliance Orders - Section 3008(a) of RCRA allows EPA or an authorized State to issue an order requiring any person who is not complying with a requirement of RCRA to take steps to come into compliance. A compliance order may require immediate compliance or may set out a timetable to be followed in moving toward compliance. The order can contain a penalty of up to $25,000 per day for each day of non-compliance and can suspend or revoke the facility's permit or interim status. When an agency issues a compliance order, the person to whom the order is issued can request a hearing on any factual provisions of the order. If no hearing is requested, the order will become final 30 days after it is issued.

- Corrective Action Orders - HSWA provides a new type of administrative order that EPA or an authorized State can use on facilities (at the time this manual was published no State had received authorization to enforce corrective action orders). Section 3008(h) allows for the issuance of an order

Administrative Orders Issued Under RCRA:

- **Compliance orders**
- **Corrective action orders**
- **Section 3013 orders**
- **Section 7003 orders.**

requiring corrective action at a facility when there has been a release of a hazardous waste or constituents into the environment. These orders can be issued to require corrective action such as repairing of liners or pumping to remove a plume of contamination. Furthermore, Section 3004(v) of HSWA provides that corrective action may be required beyond the facility boundary. Corrective action can be required regardless of when waste was placed at the facility. Thus, past problems may be cleaned up using this mechanism. In addition to requiring corrective action, these orders can suspend interim status and impose penalties of up to $25,000 for each day of non-compliance with the order.

- Section 3013 Orders - If EPA or an authorized State finds that a substantial hazard to human health or the environment exists at a facility, it can issue an administrative order under Section 3013. A 3013 order is used to evaluate the nature and extent of the problem through monitoring, analysis, and testing. These orders can be issued to either the current owner of the facility or to a past owner or operator if the facility is not currently in operation or the present owner could not be expected to have actual knowledge of the potential release.

- Section 7003 Orders - In any situation where an "imminent and substantial endangerment to health or the environment" is caused by the handling of non-hazardous or hazardous solid wastes, EPA or an authorized State can order any person contributing to the problem to take steps to clean it up. This order can be used against any contributing party including past or present generators, transporters, or owners or operators of the site. Violation of a Section 7003 order can result in penalties of up to $5,000 per day.

CIVIL ACTIONS

A civil action is a formal law suit, filed in court, against a person who has either failed to comply with some statutory or regulatory requirement or administrative order or has contributed to a release of hazardous wastes or constituents. Civil actions are generally employed in situations that present repeated or significant violations or where there are serious environmental concerns.

Civil actions are useful in several situations, such as when the person being sued has not complied with a previously

issued administrative order. In this case, the courts may force the facility to comply and impose penalties. Civil actions are also useful in situations where a long-term solution to a problem is desired. Here, the jurisdiction of the court may be helpful to ensure proper supervision of the facility's actions. In addition, civil actions may be used to stop conduct that is too dangerous to risk non-compliance with an administrative order. Civil actions may also set an example to other facility operators in order to deter their non-compliance.

RCRA provides authority for filing four different types of law suits (Civil Actions):

- Compliance Action - The U.S. Government (or an authorized State) can file suit to force a person to comply with any applicable RCRA regulations. In Federal actions the court can also impose a penalty of up to $25,000 per day, per violation, for non-compliance.
- Corrective Action - In a situation where there has been a release of hazardous waste from a facility, the U.S. Government can sue to have the court order the facility to correct the problem and take any necessary response measures. The court can also suspend or revoke a facility's interim status as a part of its order.
- Monitoring and Analysis - If EPA has issued a monitoring and analysis order under Section 3013 of RCRA and the person to whom the order was issued fails to comply, the U.S. Government can sue to get a court to require compliance with the order. In this type of case, the court can assess a penalty of up to $5,000 for each day of non-compliance with the order.
- Imminent Hazard - As with a Section 7003 administrative order, when any person contributed or is contributing to an imminent hazard to human health or the environment at a facility, the U.S. Government can sue the person to require that person to take action to remove the hazard or to remedy any problem. If the agency had first issued an administrative order, the court can also impose a penalty of up to $5,000 for each day of non-compliance with the order.

Civil Actions Filed Under RCRA:

- **Compliance action**
- **Corrective action**
- **Monitoring and analysis**
- **Imminent hazard.**

Frequently, several of the civil action authorities will be used together in the same law suit. This is particularly likely to happen where a facility has been issued an administrative order for violating a regulatory requirement, has ignored that order, and is in continued non-compliance. In this circumstance, a law suit can be filed that seeks penalties for violating the original requirement, penalties for violating the order, and a judge's order requiring future compliance with the requirement and the administrative order.

CRIMINAL ACTIONS

A criminal action is a prosecutorial action by the United States Government or a State that can result in the imposition of fines or imprisonment. There are seven acts identified in Section 3008 of RCRA that carry criminal penalties ranging from a fine of $50,000 per day or a prison sentence of up to 5 years to a total fine of $1,000,000. Criminal actions are usually reserved for only the most serious violations.

Six of the seven criminal acts carry a penalty of up to $50,000 per day or from 2 to 5 years in jail. Stated briefly, these acts are knowingly:

- Transporting waste to a non-permitted facility
- Treating, storing, or disposing of waste without a permit or in violation of a material condition of a permit or interim status standard
- Omitting important information from, or making a false statement in, a label, manifest, report, permit, or compliance document
- Generating, storing, treating, or disposing of waste without complying with RCRA's recordkeeping and reporting requirements
- Transporting waste without a manifest
- Exporting a waste without the consent of the receiving country.

The seventh criminal act is the knowing transportation, treatment, storage, disposal, or export of any hazardous waste in such a way that another person is placed in imminent danger of death or serious bodily injury. This act carries a possible penalty of up to $250,000 or 15 years in prison for an individual or a $1,000,000 fine for a corporation.

AGENCY FUNCTIONS

Responsibility for RCRA Enforcement Divided Among:

- **Headquarter's offices**
- **EPA regions**
- **State agencies.**

Responsibility for the various actions that make up the RCRA enforcement program is divided among different headquarters offices, the EPA regions, and State agencies. Headquarters is responsible for setting nationwide policy, monitoring regional and State activities, and providing technical support. The regions take the primary responsibility for performing inspections, issuing administrative orders, preparing civil actions, monitoring compliance with administrative and judicial orders, and providing support to ongoing law suits. As with many other aspects of the RCRA program, responsibility for enforcement is largely decentralized. Where a State has been authorized to carry out its own RCRA program, State agencies take primary responsibility for enforcement functions. While the State has the authority to take any enforcement action, EPA also has the authority to issue administrative orders or file law suits if the State fails to do so or does not obtain acceptable results.

SUMMARY

There are two essential elements to RCRA's enforcement program -- compliance monitoring and enforcement actions. Compliance monitoring is used to determine a facility's level of compliance with RCRA's regulatory requirements. There are two primary methods of collecting compliance monitoring data:

- Inspections by State or EPA officials
- Examinations of the reports that each facility is required to submit.

Inspections must be conducted:

- Annually at all Federal- or State-operated facilities
- At least once every 2 years at all other Subtitle C facilities.

A primary goal of enforcement actions is to bring facilities into compliance and keep them there. Enforcement actions may be taken when a facility is found to be:

- Out of compliance with applicable Subtitle C regulations
- Releasing non-hazardous or hazardous solid waste, or hazardous constituents.

There are a number of enforcement options available under RCRA:

- Administrative actions:
  - Informal
  - Administrative orders (compliance, corrective action, Section 3013, and Section 7003)
- Civil actions:
  - Compliance action
  - Corrective action
  - Monitoring and analysis
  - Imminent hazard
- Criminal actions (e.g., knowingly transporting waste to a non-permitted facility).

The responsibility for the various enforcement actions is divided among different headquarters offices, the EPA regions, and State agencies.

CHAPTER 7

STATE AUTHORIZATION

- OVERVIEW
- DEVELOPING A STATE HAZARDOUS WASTE PROGRAM
    - PROGRAM DESCRIPTION
    - ATTORNEY GENERAL'S STATEMENT
    - MEMORANDUM OF AGREEMENT
- PUBLIC REVIEW OF THE PROPOSED STATE PROGRAM
- EPA REVIEW AND APPROVAL OF APPLICATIONS FOR STATE PROGRAMS
- REVISING AND TERMINATING APPROVED STATE PROGRAMS
    - REVISING STATE PROGRAMS
    - WITHDRAWING APPROVAL OF STATE PROGRAMS
    - TRANSFERRING PROGRAM RESPONSIBILITIES BACK TO EPA
- SUMMARY

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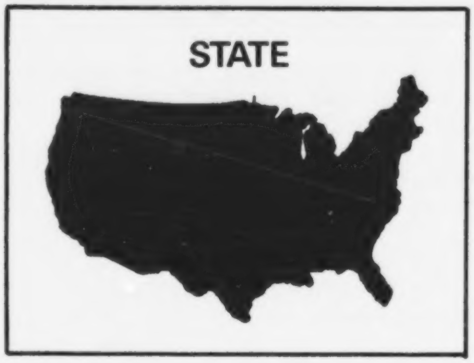
CHAPTER 7 STATE AUTHORIZATION

OVERVIEW



RCRA, like many of our nation's environmental laws, encourages States to take over the responsibility for program implementation and enforcement from the Federal Government. This is because States are closer to, and more familiar with, the regulated community and, therefore, are in a better position to administer the programs and respond to local needs effectively. RCRA was designed by Congress to have the entire Subtitle C program administered by States with only minimal oversight from the Federal Government.

The process that States must go through to obtain the responsibility for the Subtitle C program involves developing a State hazardous waste program and having it approved by EPA. This process is described below.

DEVELOPING A STATE HAZARDOUS WASTE PROGRAM

States may Assume Responsibility for Subtitle C in Two Ways:

- **Interim authorization**
  - **Phase I -- Implementation**
  - **Phase II -- Permitting**
- **Final authorization.**

Under RCRA, as enacted in 1976, the States were given two options for assuming the responsibility to administer the Subtitle C program. They could apply for either interim or final authorization. Interim authorization allows a State to develop and implement a program that is not exactly the same as the Federal program (such a State program is termed "substantially equivalent" in Section 3006(c) of the Act). For a State program to receive final authorization, however, it must be equivalent to, no less stringent than, and consistent with the Federal program it hopes to replace. In addition, the program must provide adequate enforcement authority to carry out its provisions, and require a public notification period prior to issuing a permit. It is important to note that a State can choose to make its program more stringent or more extensive than the Federal program and still be eligible for authorization.

The 1976 legislation enabled a State to receive interim authorization in two phases. Phase I covers regulations pertaining to the identification of hazardous wastes, and standards for generators, transporters, and interim status TSD facilities. Phase II covers the procedures and standards for permitting facilities. The intent of Congress in allowing for interim authorization was to enable States to pick up the Federal program at a reduced level while modifying their hazardous waste programs so that they could meet the more stringent requirements of final authorization. Under HSWA, however, interim authorization expired as of January 31, 1986. Now, States can only apply for final authorization.

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Because of the expiration date, this chapter will not discuss the requirements that a State must fulfill to receive interim authorization. Rather, it will detail the process that a State must go through to qualify for final authorization.

Any State that seeks final authorization for its hazardous waste program must submit an application to the Administrator consisting of the following elements:

- A letter from the Governor requesting program approval
- Copies of all applicable State statutes and regulations, including those governing State administrative procedures
- Documentation of public participation activities (e.g., notice and opportunities for comment on the State program prior to submission of the application to EPA)
- Program description
- Attorney General's statement
- Memorandum of Agreement.

Since the first three elements listed above are self-explanatory, only the last three will be described below.

PROGRAM DESCRIPTION

As the name implies, the program description details the contents of the hazardous waste program that the State wants to administer in place of the Federal program. It includes descriptions of the:

- Scope, structure, coverage, and processes of the State program
- State agency or agencies that will have responsibility for running the program
- State-level staff who will carry out the program
- State's compliance tracking and enforcement program

- State's manifest system
- Applicable State procedures, including permitting procedures and any State administrative or judicial review procedures

In addition, the program description must include an estimate of:

- Costs involved in running the program and an itemization of the sources and amounts of funding available to support the program's operation
- The number of generators, transporters, and on-site and off-site disposal facilities (along with a brief description of the types of facilities and an indication of the permit status of these facilities)
- The annual quantities of hazardous wastes generated within the State, transported into and out of the State, and stored, treated, or disposed of within the State (if available).

The most important parts of the program description are the details of the scope and coverage of the State's program. It is here that the State lists the statutory and regulatory requirements with which facilities operating under its program must comply. These requirements may not be the ones in effect on the date of the State's application for program authorization. As a result of HSWA (Section 3006(b)) an application is reviewed on the basis of the Federal statutory provisions and regulations that were in effect 12 months prior to the State's application submission. This amendment was intended to ensure that last minute changes to the Federal program that the State did not have time to adopt would not prevent an otherwise qualified State from obtaining final authorization. If the State chooses to develop a program that is more stringent and/or extensive than the one required by Federal law, the program description should address those parts of the program that go above and beyond what is required under Subtitle C.

ATTORNEY GENERAL'S STATEMENT

Regardless of how strong a State program appears to be on paper, it cannot be effective unless there are mechanisms in place to implement and enforce it. Therefore, any State that wants to assume the responsibility for Subtitle C must demonstrate to the EPA Administrator that the laws of the State provide adequate authority to carry out all aspects of the State program. This demonstration comes in the form of a statement written by the State's Attorney General or, if properly authorized, the attorney at the State agency with responsibility for running the program. The statement includes references to the statutes, regulations, and judicial decisions that the State will rely on in administering its program.

MEMORANDUM OF AGREEMENT

Although a State with an authorized program assumes primary responsibility for administering Subtitle C, EPA still retains some responsibilities and oversight powers vis-a-vis the State's execution of its program. The Memorandum of Agreement (MOA) between the State Director and the Regional Administrator outlines the nature of these responsibilities and oversight powers, and the level of coordination between the State and the EPA in operating the program. The MOA includes provisions for:

- Specifying the frequency and content of reports that the State must submit to EPA
- Coordinating compliance monitoring and enforcement activities between the State and EPA
- Joint processing of permits for those facilities that require a permit from both the State and EPA under different programs
- Specifying the types of permit applications that will be sent to the Regional Administrator for review and comment.

For a complete listing of what must be included in the MOA, see 40 CFR Section 271.8(b).

PUBLIC REVIEW OF THE PROPOSED STATE PROGRAM

Once the State has completed its application it must inform the public about its decision to seek approval by issuing a notice. The notice must be widely distributed, and the public given ample opportunity to review the application's contents. A public hearing may be held if there is enough interest expressed.

If the application is significantly modified as a result of information received during the public comment period, the

State must provide for an additional comment period, at which time public feedback on the modifications is taken. After the application has been fully scrutinized by the public, and modified accordingly, it can be submitted to the Administrator for review.

EPA REVIEW AND APPROVAL OF APPLICATIONS FOR STATE PROGRAMS

For a State Program to Receive EPA Appproval it Must Satisfy the Following Conditions:

- **Equivalency/Stringency**
- **Consistency**
- **Enforceability**
- **Notice and hearing in the permit process.**

After the State has submitted a complete application the Administrator can proceed to determine whether or not the State's program should be authorized. In making this determination the Administrator adheres to the following schedule:

- Tentative Determination -Within 90 days from the receipt of the complete application the Administrator must tentatively approve or disapprove the State's application. The tentative determination is then published in the Federal Register.

  Public Input -- The public is given 30 days to comment on the State's application and the Administrator's tentative determination. If sufficient interest is expressed, a public hearing will be held within this time period.

  Final Determination -- Within 90 days of the appearance of the tentative determination in the Federal Register the Administrator must consider any comments submitted and decide whether or not to approve the State's program. This final determination is then published in the Federal Register.

Before approving an application, the Administrator must be satisfied that the following conditions are met:

- Equivalency/Stringency - The State program must adopt regulatory and statutory requirements that are at least equivalent to (Section 3006(b)), and no less stringent than (Section 3009), those implemented and enforced under the Subtitle C program at the Federal level. This does not mean that the State program cannot differ from the Federal program. Indeed, the State's program can be more stringent and/or extensive than the Federal program.

- Consistency - The State program must be consistent with the Federal program and other authorized State programs (Section 3006(b)). EPA focuses its

review of consistency on those provisions of a State program that may interfere with the proper operation of the national regulatory scheme developed under RCRA. Accordingly, if a State program unreasonably restricts, impedes, or operates as a ban on the free movement of hazardous waste across State borders or does not meet the Federal manifest requirements it is deemed inconsistent and cannot be approved. In addition, any aspect of State law or of the State program that has no basis in human health or environmental protection and that acts as a prohibition on the treatment, storage or disposal of hazardous waste in the State may be deemed inconsistent and therefore not approvable.

- Enforceability - RCRA requires that State programs contain adequate authority to enforce all the requirements developed under Subtitle C (Section 3006(b)). In assessing enforceability, EPA focuses on the inspection, enforcement remedy, and penalty authorities contained in the program. The State program must also provide for public participation in the enforcement process.

- Notice And Hearing in The Permit Process - Under Section 7004(b) all State programs must provide for public notification prior to the issuance of permits. Furthermore, the program must require that both a public comment period (at least 45 days) and an informal public hearing be held if a request for such a hearing is made during the comment period.

REVISING AND TERMINATING APPROVED STATE PROGRAMS

Approved State programs are not static. They are subject to changes ranging from the adoption of new regulatory requirements to the termination of the program itself. Specifically, there are three actions that can be taken which either alter the content or status of the State program:

- Revising the program
- Withdrawing program approval
- Transferring program responsibilities back to EPA.

REVISING STATE PROGRAMS

As Federal and State statutory or regulatory authority is modified or supplemented, it often becomes necessary to revise the State program accordingly. Such revisions can be initiated by the State or required as a result of changes in the Federal Subtitle C program.

If the State revises its program it must notify the Administrator and submit a modified program description, MOA, and any other documents that EPA determines necessary under the circumstances. In reviewing the State's proposed modifications, the Administrator applies the same standards used in reviewing the State's initial program application. The revisions become effective upon approval of the Administrator.

State programs also must be revised in response to changes in the Federal program. This makes sense in light of the requirement that all approved State programs be at least equivalent to, no less stringent than, and consistent with the Federal program that it wants to replace. States must revise their programs to incorporate these changes by a specified date, depending on the type of State program revisions that are required. If the State is able to modify its program without passing a statutory amendment, the program must be revised within 1 year. On the other hand, if a statutory amendment is required, the State is given 2 years to revise its program.

Prior to HSWA, changes to Federal requirements were not enforced in authorized States until the State's program was appropriately modified and approved by the Administrator. Now, although authorized States still have 1 or, in some cases, 2 years to modify their program, the Federal government can enforce HSWA requirements in an authorized State until the State receives approval to do so (Section 3006(g)). This Federal right of enforcement does not apply to non-HSWA requirements.

The two reasons for creating this State-Federal regulatory system in authorized States are straightforward. Considering the scope of the nation's hazardous waste problems, Congress decided that it was not prudent to allow for a 1- or 2-year time lag between the promulgation of new Federal requirements and their enforcement in authorized States. Furthermore, enforcing these requirements immediately in nonauthorized States and not in authorized States would lead to hazardous waste program inconsistencies at the national level.

In certain circumstances States do not have to revise their program and have it approved before gaining the authority to enforce new Federal requirements resulting from HSWA.

Any State that has final authorization for the pre-HSWA program may submit to the Administrator evidence that its program contains any requirement substantially equivalent to a requirement created under HSWA. Such states may request interim authorization to carry out the HSWA requirement in lieu of the the Federal Government.

WITHDRAWING APPROVAL OF STATE PROGRAMS

Approved State programs are continually subject to review. If the Administrator finds that a program no longer complies with the appropriate regulatory requirements he may withdraw program approval. Such circumstances include a failure to:

- Issue permits that conform to the regulatory requirements
- Inspect and monitor activities subject to regulation
- Comply with the terms of the MOA
- Take appropriate enforcement action.

In deciding whether or not to withdraw program approval, the Administrator must consider comments from interested parties and give the State the opportunity to take actions that would bring it back into compliance. If the State fails to take appropriate action, program approval is withdrawn and the responsibility for administering Subtitle C reverts back to the Federal Government.

TRANSFERRING PROGRAM RESPONSIBILITIES BACK TO EPA

In some cases, e.g., for financial reasons, States with approved programs may voluntarily transfer the program back to EPA. To do this the State must give the Administrator 180 days notice and submit a plan for the orderly transfer of all relevant program information necessary for EPA to administer the program, e.g., permits, permit files.

SUMMARY

RCRA is designed so that the States can acquire authority to administer the entire Subtitle C program. Any State that seeks final authorization for its hazardous waste program must submit an application to the Administrator consisting of the following elements:

- A letter from the Governor requesting program approval

- Copies of all applicable State statutes and regulations
- Documentation of public participation activities
- Program description
- Attorney General's statement
- Memorandum of agreement.

Before approving an application the Administrator must be satisfied that the State program:

- Is equivalent to and no less stringent than the Federal program
- Is consistent with the Federal program
- Is enforceable
- Provides for public notification prior to the issuance of a permit.

Approved State programs are subject to:

- Revision
- Withdrawal of approval
- Transfer of program responsibilities back to EPA.

CHAPTER 8

PUBLIC PARTICIPATION

- OVERVIEW
- GENERAL EPA PUBLIC PARTICIPATION REQUIREMENTS
    - STATUTORY REQUIREMENTS
    - REGULATIONS
    - GUIDANCE
- HSWA'S EFFECT ON PUBLIC PARTICIPATION UNDER RCRA
    - OFFICE OF OMBUDSMAN
    - DISCLOSURE OF INFORMATION
- SUMMARY

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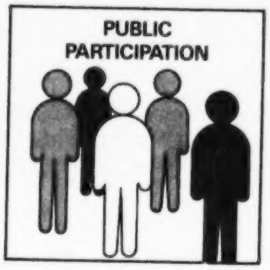
CHAPTER 8 PUBLIC PARTICIPATION

OVERVIEW

The right of the public to participate in government decisions is basic to our democractic system. In few places is this right exercised more than in the area of hazardous waste management. The public is deeply concerned about, and often fearful of, the potential impacts of hazardous waste on their health and safety. In recognition of their rights and interest in hazardous waste management, and in a conscious attempt to include them in the decision-making process, the public is given numerous opportunities to get involved in all phases of the RCRA program.



The overall goal of public participation is to build trust and credibility, and to keep emotions, human energy, and conflicts focused on substantive issues and solutions. It provides an opportunity for all interested parties to become informed and involved, and to influence program development and implementation. Further, EPA managers have found that active public participation provides a forum for identifying and addressing concerns, and, thereby, reducing conflict.

This chapter details the public participation framework established under RCRA. It includes descriptions of the statutory and regulatory requirements, and a summary of guidance developed concerning public participation. In addition, the new features resulting from HSWA are discussed.

GENERAL EPA PUBLIC PARTICIPATION REQUIREMENTS

In consideration of the importance of citizen involvement, EPA established public participation requirements that apply to all environmental programs administered by the Agency. They are outlined in the Administrative Procedures Act (APA, 5 U.S.C. Sections 551-559) and include:

- Providing information and soliciting comments on all proposed and final Agency actions, e.g., the development of regulations
- Incorporating public comments into the decision-making process
- Establishing an appeals process for certain Agency decisions.

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The participation requirements in the APA assure the public a voice in EPA decision making. However, because the issues surrounding hazardous waste management often arouse intense emotions, the public participation framework developed under RCRA further expands citizen opportunity for involvement well beyond Agency-wide requirements. This framework can be broken down into three parts:

- Statutory requirements
- Regulatory requirements
- Guidance.

STATUTORY REQUIREMENTS

Those statutory requirements under RCRA that expand upon the APA's public participation framework cover three areas:

- Access to information
- Program implementation
- Enforcement.

Access to Information

Under RCRA Section 3007 (b) the public is given the right to see information obtained through a facility inspection. This information is often of particular interest because it details the facility's level of compliance with the regulations. In certain cases, however, the Administrator may remove the right to see inspection information, e.g., when company trade secrets are involved.

Program Implementation

The Act specifically requires (Section 3006) that the public be given the opportunity to comment before:

- A State submits an application for authorization to implement Subtitle C

- EPA decides to grant or deny a State authorization

- EPA withdraws a State's authorization

- EPA issues a suspension or revokes the permit of a hazardous waste facility.

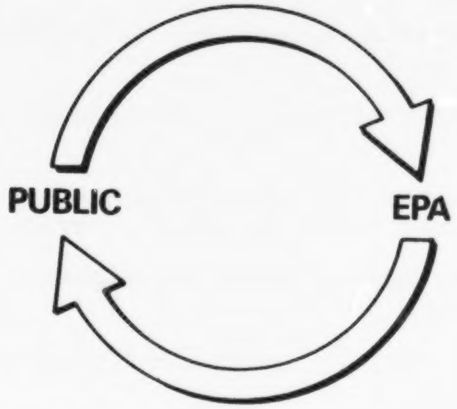
Enforcement

Under the Act the public is given a fairly broad authority to ensure that the entire RCRA program is properly implemented. Specifically, Section 7002 allows a citizen to bring a civil suit against any person or government agency alleged to be in violation of any permit, standard, regulation, condition, requirement, or order which has become effective under the Act. HSWA expanded the scope of the citizen suit provisions. Now, a person may also bring suit against any past or present generator, transporter, or owner or operator of a facility who has contributed to or is contributing to a condition that may present an imminent and substantial endangerment to human health or the environment.

The right of citizens to bring suits under Section 7002 is limited in certain situations. No suit may be brought if the Administrator or a State is already taking enforcement action against the alleged violator. HSWA further limits the reach of such suits by not allowing them to be used to impede the issuance of a permit or the siting of a facility. Finally, also under HSWA, transporters are protected from citizen suits in response to problems arising after delivery of the waste.

REGULATIONS

Most regulations covering public participation under RCRA were issued in late 1977, when the Office of Solid Waste was still part of the Office of Water and Waste Management. At that time the Assistant Administrator of Water and Waste Management gathered together a work group to revise and consolidate the Office's public participation policies. The general policies then were codified as 40 CFR Part 25 in February 1979.



The objectives of these regulations are to:

- Make sure the public understands the RCRA program and proposed changes to it
- Be responsive to public concerns and take them into account
- Develop a close link among EPA, States, and the public
- Provide opportunities for public participation beyond what is required, whenever feasible.

To achieve these regulatory goals, agencies involved in the implementation of RCRA are required to take actions that include:

- Providing free copies of reports
- Alerting interested and affected parties of upcoming public hearings
- Establishing EPA-funded advisory groups when an issue warrants sustained input from a core group of citizens.

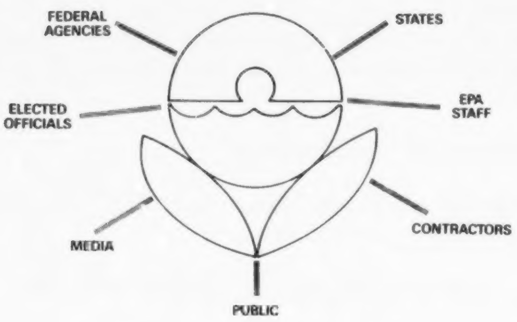
In addition to the Part 25 regulations, RCRA's permitting regulations (40 CFR 270) also cover public participation. They require the permitting agency to:

- Consider public comments pertaining to permit violations
- Notify the public of the intent to issue a permit
- Allow 45 days for public comment on the permit application
- Notify the public of proposed major modifications to an operating permit.

GUIDANCE

To supplement the preceding statutory and regulatory requirements, EPA has recently developed guidance for public participation in RCRA permitting. The guidance is designed to:

- Identify public concerns early in the permitting process
- Encourage the exchange of information between EPA, the State, the permittee, and the community
- Create open and equal access to the permitting process
- Anticipate conflicts and provide an early means for resolution.



Who Is Involved In Public Participation?

The steps that will be taken to achieve these goals for each facility are outlined in a Public Involvement Plan which is developed and implemented by regional EPA and/or State staff. In developing the Plan, staff may interview individuals in the community. The Plan, in turn, may recommend that small informational meetings or public hearings be held to keep community members informed during the permitting process.

Although this guidance is relatively new and untested, it has great potential to be effective. Its success will depend on the degree to which active public involvement in permitting can reduce citizen fears and lead to the permitting and, ultimately, the construction of new facilities.

HSWA'S EFFECT ON PUBLIC PARTICIPATION UNDER RCRA

HSWA created a number of opportunities for public involvement in the RCRA program. Two of these are particularly noteworthy:

- The creation of an Office of Ombudsman
- The requirement that authorized States fully disclose all information relevant to the management of hazardous waste.

OFFICE OF OMBUDSMAN

In order to create a central clearinghouse for public concerns on matters relating to the implementation and enforcement of RCRA, HSWA requires EPA to establish the Office of Ombudsman (Section 2008). The Office's primary function will be to receive complaints and/or requests for information submitted by any person about any program or requirement under the Act. The staff, in turn, addresses these public inquiries. In addition, the Ombudsman makes recommendations to the Administrator on the appropriate course of action, when such advice is required. The office was given a 4-year life-span, ending on November 8, 1988.

DISCLOSURE OF INFORMATION

When EPA is implementing the RCRA program within a State, the public is given access to facility and site information relating to permitting, compliance, enforcement, and the results of inspections. Prior to HSWA, however, an authorized State was only required to divulge to the public the name and address of permit applicants. HSWA (Section 3006(f)) corrects this lack of equivalency. Now, information obtained by authorized States regarding facilities must be made available to the public in substantially the same manner, and to the same degree, as would be the case if EPA were carrying out the RCRA program in the State.

SUMMARY

The public participation framework developed under RCRA expands citizen opportunity for involvement well beyond Agency-wide requirements (outlined in the Administrative Procedures Act). This framework consists of:

- Statutory requirements:
  - Access to information
  - Program implementation
  - Enforcement

- Regulations (e.g., the requirement for agencies involved in the implementation of RCRA to provide free copies of reports)
- Guidance (e.g., outlining the development and implementation of Public Involvement Plans)

HSWA further expanded the public participation program under RCRA by:

- Creating an Office of Ombudsman
- Requiring that authorized States fully disclose all information relevant to the management of hazardous waste.

CHAPTER 9

RCRA AND ITS RELATIONSHIP TO SUPERFUND AND OTHER ACTS

- OVERVIEW
- SUPERFUND: WHAT IS IT?
    - TAKING RESPONSE ACTIONS
    - WHO PERFORMS THE RESPONSE ACTION?
    - FINANCING RESPONSE ACTIONS
- RCRA/SUPERFUND RELATIONSHIPS
    - DISPOSAL OF SUPERFUND WASTE
    - CORRECTIVE ACTION
    - IMMINENT HAZARD
- RCRA's RELATIONSHIP TO OTHER ENVIRONMENTAL ACTS
- SUMMARY

CHAPTER 9

RCRA AND ITS RELATIONSHIP TO SUPERFUND AND OTHER ACTS

OVERVIEW

RCRA does not operate alone, but in conjunction with other environmental Acts. One of the most significant linkages is between RCRA and Superfund. This linkage includes Superfund sites having to abide by RCRA requirements, and an overlap of enforcement authority between the two Acts. In addition to the RCRA/Superfund linkages, some RCRA facilities must meet the requirements of other Acts, e.g., the Clean Water Act.

This chapter will first give a summary description of the Superfund program, and then discuss the relationships between RCRA and Superfund before outlining RCRA's relationship to other environmental statutes.

SUPERFUND: WHAT IS IT?

At the publication of this manual, reauthorization of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), commonly referred to as Superfund, is being debated by both houses of Congress, so specific changes in the requirements of this law are unknown at this time. This chapter describes the relationship of RCRA to Superfund as of December 1, 1985.

Superfund was created in response to the discovery in the late 1970's of a large number of abandoned, leaking hazardous waste dumps that were threatening human health and contaminating the environment. One of the best known of these dumps is Love Canal, in Buffalo, New York, where a chemical company had buried large amounts of hazardous waste in a canal originally designed to transport water. After the canal was capped with clay and soil, during the 1940's and early 1950's, a community was built around it and a school on top of it. Over the years the canal leaked and by 1978 the danger to human health had become so great that President Carter was forced to declare the canal area a national disaster and relocate families in its vicinity.

At the time that Love Canal gained national attention, EPA had few tools to deal with a disaster of this type and magnitude. Although RCRA allowed EPA to require proper management of hazardous waste at active and properly closed facilities and to compel persons to abate endangerments to human health or the environment, it provided limited authority for governmental response to leaks or threatened leaks of hazardous waste at abandoned or

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inactive sites. It quickly became apparent to the President, Congress, and a frightened public that some type of national legislation was needed to fill this void. This legislation took the form of Superfund, which was passed by Congress on December 3, 1980, and signed into law a week later by President Carter.

The Superfund program consists of three functions:

- Taking actions in response to releases or threatened releases of hazardous substances, pollutants, or contaminants (Section 104-CERCLA)
- Requiring Responsible Parties (any individual(s) or corporation(s) responsible for, or contributing to a hazardous waste site -- also referred to as RPs) to take the appropriate response action and overseeing their response (Section 106-CERCLA)
- Recovering expenditures for response actions taken by the Federal Government (Section 107-CERCLA).

TAKING RESPONSE ACTIONS

EPA has authority to take action under Superfund whenever there is:

- A release or substantial threat of release of any hazardous substance
- A release or a substantial threat of release of any pollutant or contaminant that may present an imminent and substantial danger to the public health or welfare.

OIL
OIL
OIL
OIL

In some situations the States, the United States Coast Guard, or the United States Army Corps of Engineers may take the lead in responding to these types of releases, but this chapter will focus on the steps taken by EPA to implement Superfund. Two types of response actions exist: removal and remedial.

Removal Actions

Removal actions generally are short-term cleanups that usually address problems only at the surface of a site. They are conducted in response to an emergency situation, e.g., to avert an explosion or to clean up a hazardous waste spill, or to stabilize a site until a permanent remedy can be found. Removal actions are limited to 6 months duration and $1 million in expenditures, although in certain cases these limits may be extended.

Remedial Actions Remedial actions are generally more expensive (an average of $6-$12 million) and of longer duration (an average of 3.5 years) than removal actions. Remedial actions are intended to provide permanent solutions to hazardous substance threats. EPA can take remedial actions only at hazardous waste sites on the National Priorities List (NPL), which contains the nation's most dangerous sites. Sites are placed on the NPL after being evaluated through the Hazard Ranking System (HRS). The HRS is a model that determines the relative risk to public health and the environment posed by hazardous substances in ground water, surface water, air, and soil. As of September 1985, there were 541 sites on the NPL and 309 sites proposed for inclusion. In certain cases a remedial action can follow a removal action at the same site.

WHO PERFORMS THE RESPONSE ACTION?

EPA often tries to identify the parties that are responsible for the contamination before taking any response action. The following individuals can be considered responsible parties (RPs):

- Past and present owners or operators of the site
- Generators of hazardous substances found at the site
- Transporters of hazardous substances to the site.

Once the RPs are identified, EPA determines whether they are able to undertake the response action. If they are, EPA can either negotiate a legal agreement requiring the RPs to respond or unilaterally order them to take the response action. If the RPs are either unable to respond or refuse to comply with the Agency's order, EPA can take the necessary response action itself.

Regardless of who carries out the response, the procedures for doing so are uniform. These procedures are outlined in the National Contingency Plan (NCP) the most recent version of which was published in November, 1985. The NCP includes the procedures to follow in determining the appropriate extent of cleanup and of assuring that remedial actions are cost effective.

FINANCING RESPONSE ACTIONS

As discussed above, EPA's first preference in achieving cleanup is for the RPs to perform the response action themselves. Where the RPs do not respond, either because they are not willing or not able, e.g., bankruptcy, EPA can take the necessary action using money from the Hazardous

Substance Response Trust Fund (the "Superfund"). The Fund, set at $1.6 billion, is collected through a combination of taxes on crude oil, petroleum products, designated chemical feedstocks, and Federal appropriations. It is used to pay for Federal and State response costs. The Fund is also available in limited circumstances to pay for damages to natural resources, and for epidemiological studies.

In light of the high cost of response actions and the number of sites and spills that need to be addressed it is easy to see how even a $1.6 billion fund could quickly be depleted. To address this problem Congress gave EPA the power to recover Fund expenditures by bringing suit against RPs for the cost of Fund-financed cleanup (a process called cost recovery).

RCRA/SUPERFUND RELATIONSHIPS

Although Superfund and RCRA are separate programs (Superfund addressing problems at facilities no longer operating, RCRA regulating present and future waste management), they overlap in a number of areas. Considering that both laws are designed to protect human health and the environment from exposure to hazardous wastes, this overlap should come as no surprise. The areas of relationship encompass:

- Disposal of Superfund wastes
- Corrective action
- Imminent hazards.

DISPOSAL OF SUPERFUND WASTE

When wastes from a Superfund site are taken off-site for treatment, storage, or disposal, the facility to which they are brought must have a RCRA permit or be operating under interim status. Superfund policy further requires that facilities used for treatment or disposal of Superfund waste be inspected by EPA to ensure that they are in compliance with the appropriate RCRA regulations. In addition to sending waste to facilities that are in compliance with RCRA regulations, any individual moving waste off a Superfund site must adhere to RCRA's generator and transporter requirements.

Wherever applicable, on-site treatment, storage, or disposal of hazardous waste at Superfund sites must meet RCRA technical requirements for the design and operation or the closure of a facility. Individuals involved in such on-site activities need not, however, comply with RCRA generator, transporter, or permit requirements.

CORRECTIVE ACTION

Prior to HSWA, EPA's only explicit authority for requiring owners or operators of RCRA facilities to conduct extensive cleanups was under Superfund. Now RCRA authorizes EPA to require corrective action under an order or as part of a permit whenever there is or has been a release of hazardous waste or constituents into the environment. HSWA provides similar corrective action authority in response to releases at interim status facilities. HSWA further directs EPA to require corrective action beyond the facility boundary, on a case-by-case basis, pending new regulations to that effect.

EPA interprets the term "corrective action" to cover the full range of possible actions, from studies and quick-fix measures to full cleanups. Anyone who violates the corrective action order can be fined up to $25,000 per day of noncompliance and runs the risk of having their interim status suspended or revoked.

IMMINENT HAZARD

Both Superfund and RCRA contain provisions that allow EPA to require persons contributing to an imminent hazard to take the necessary actions to clean it up. Under Superfund (Section 106) EPA is given the authority, via the courts, to abate an imminent or substantial danger to public health or welfare or the environment that results from an actual or threatened release of a hazardous substance. The authority under RCRA is essentially the same, except that in RCRA's imminent hazard provision (Section 7003), non-hazardous as well as hazardous solid waste releases are addressed. The Superfund and RCRA imminent hazard provisions may be used in tandem to strengthen the Government's case.

RCRA's RELATIONSHIP TO OTHER ENVIRONMENTAL ACTS

There are many circumstances under which a TSD facility may have to comply with the regulatory requirements of other environmental Acts in addition to those requirements developed under Subtitle C. These other Acts and their potential applicability to RCRA facilities include:

- Clean Air Act -- Emissions coming from a TSD, e.g., incinerator, must meet the performance standards set out in this Act.

- Clean Water Act -- Any portion of a TSD that discharges wastes into navigable waters must obtain a National Pollutant Discharge Elimination System permit under this Act. In addition, any portion of a TSD that discharges hazardous wastes into a sewer line that leads into a Publicly Owned Treatment Works must comply with the Clean Water Act's pre-treatment standards.

- Safe Drinking Water Act -- The Maximum Contaminant Levels developed under this Act may be used in ground-water monitoring programs conducted at both interim status and permitted facilities.

- Toxic Substances Control Act -- Any RCRA facility that handles hazardous wastes that contain more than 50 parts per million of PCBs is also subject to regulation under this Act.

SUMMARY

The Superfund program consists of three functions:

- Taking actions (removal or remedial) in response to releases or threatened releases of hazardous substances, pollutants, or contaminants

- Requiring responsible parties to take the appropriate response and overseeing their response

- Recovering expenditures for response actions taken by the Federal Government.

Although Superfund and RCRA are separate programs they overlap in a number of areas:

- Disposal of Superfund wastes -- Superfund wastes taken off-site must be treated, stored, or disposed of at a facility that has a RCRA permit or is operating under interim status. In addition, wherever applicable, on-site treatment, storage, or disposal of hazardous waste at Superfund sites must meet certain RCRA technical requirements.

- Corrective Action -- EPA now has two mechanisms with which to require extensive cleanups: existing Superfund authority and new HSWA corrective action authority.
- Imminent Hazard -- Both Superfund and RCRA contain provisions requiring persons contributing to an imminent hazard to take the necessary actions to clean it up.

Under certain circumstances, RCRA facilities may have to comply with the regulatory requirements of other environmental Acts including the:

- Clean Air Act
- Clean Water Act
- Safe Drinking Water Act
- Toxic Substances Control Act.

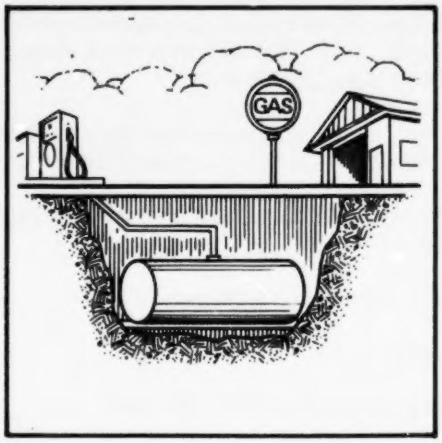
SECTION IV

SUBTITLE I OF RCRA - MANAGING UNDERGROUND STORAGE TANKS

- OVERVIEW
- WHO IS REGULATED BY THE UNDERGROUND STORAGE TANK PROGRAM?
- THE UNDERGROUND STORAGE TANK PROGRAM
  - BAN ON UNPROTECTED NEW TANKS
  - NOTIFICATION
  - REGULATORY PROGRAM
  - STATE AUTHORIZATION
  - INSPECTIONS AND ENFORCEMENT
- SUMMARY

SECTION IV SUBTITLE I OF RCRA - MANAGING UNDERGROUND STORAGE TANKS

OVERVIEW



As many as 1.5 million underground storage tanks are used in the United States to contain hazardous substances or petroleum products. An estimated 100,000 to 300,000 of these tanks are presently leaking and polluting underground water supplies, and more may begin to leak within the coming years. In addition to ground-water contamination, leaking tanks can damage sewer lines and buried cables, poison crops, and lead to fires and explosions. To address this problem, Congress created a new program under HSWA (Subtitle I) to control and prevent leakage from underground storage tanks (UST). The UST program breaks new ground in that, for the first time, the RCRA program applies to products as well as wastes. Subtitle I regulates underground tanks storing petroleum products (including gasoline and crude oil) and any substance defined as hazardous under Superfund. It is important to note that Subtitle I does not regulate tanks storing hazardous wastes as defined by RCRA. Such tanks are already regulated under Subtitle C (see Chapter 4).

Subtitle I requires EPA to develop both performance standards for new tanks and regulations for leak detection, prevention, and correction at all underground tank sites. While the regulations are being developed, the amendments impose an interim standard, effective May 7, 1985, which bars installation of unprotected tanks under most conditions. Furthermore, Congress has required EPA to conduct three studies on various types of tanks. The results of these studies will be used by EPA in making recommendations concerning any additional regulatory actions which may be needed. EPA also is gathering information to determine the extent of the problem of leaking underground storage tanks nationwide. To help bring this problem to the attention of tank owners or operators, EPA has issued a Chemical Advisory on the potential dangers posed by leaking fuel tanks.

This section will describe the new UST program, including the ban on unprotected tanks, the tank notification program, the statutory mandate for the regulatory program, State authorization, and inspections and enforcement. Because the UST program is new and the regulations pertaining to it are under development (e.g., tank performance standards), only an outline of the program can be given here.

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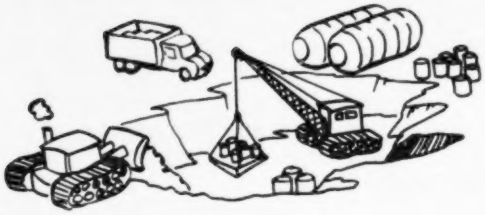
WHO IS REGULATED BY THE UNDERGROUND STORAGE TANK PROGRAM?

An "underground storage tank" is defined as any tank with at least 10 percent of its volume buried below ground, including any pipes attached to the tank. Thus, above-ground tanks with extensive underground piping may be regulated under the new law. Any owner or operator, including Federal entities, who stores petroleum products or a substance defined as hazardous under Superfund in an underground tank must meet the new UST requirements. The UST program does not apply to:



- Tanks holding a hazardous waste regulated under the RCRA hazardous waste program (Subtitle C)
- Farm and residential tanks with a holding capacity of less than 1,100 gallons of motor fuel
- On-site tanks storing heating oil
- Septic tanks
- Pipelines regulated under other laws
- Surface impoundments
- Systems for collecting storm water and wastewater
- Flow-through process tanks
- Liquid traps or associated gathering lines related to operations in the oil and natural gas industry.

THE UNDERGROUND STORAGE TANK PROGRAM

The UST program outlined in the Act has five parts:

- Ban on unprotected new tanks
- Notification program
- Regulatory program
- State authorization
- Inspections and enforcement.

Each of these is described below.

BAN ON UNPROTECTED NEW TANKS

A provision banning underground installation of unprotected new tanks went into effect on May 7, 1985. Currently, no person may install an underground storage tank unless:

- It will prevent releases of the stored substances due to corrosion or structural failure for the life of the tank
- It is protected against corrosion, constructed of noncorrosive material or steel clad with noncorrosive material, or designed to prevent the release of the stored substances
- The material used in the construction or lining of the tank is compatible with the substance to be stored.

The maximum penalty is $10,000 per tank for each day this provision is violated.

NOTIFICATION

Subtitle I calls for a notification program that may affect several million tank owners. This program requires, in part, that owners of existing or newly installed underground storage tanks notify the State or local agency of each tank's age, size, type, location, and use. The major steps of the notification program and their implementation schedule are as shown below:

Schedule	Requirement
By May 1985	State governors must designate the State or local agency that will receive the notifications.
By Nov. 1985	EPA must prescribe the form of the notice.
By May 1986	Owners of existing underground storage tanks must notify the State or local agency of each tank's age, size, type, location, and use.
By May 1986	Owners of underground storage tanks taken out of operation after January 1, 1974, but still in the ground, must notify the State or local agency of each tank's age, date taken out of operation, size, type, location, and contents (type and quantity of substance left in the tank).

After May 1986	Owners of newly installed underground storage tanks must notify the State or local agency, within 30 days after installation, of the existence of such tank, specifying the age, size, type, location, and uses of the tank.

In addition, beginning 30 days after the form of the notice is prescribed and for 18 months thereafter, any person who deposits regulated substances in an underground storage tank must notify the owner or operator of such tank of the owner's notification requirements. Finally, beginning 30 days after the new tank performance standards are issued (see Figure IV.1) sellers of underground storage tanks must notify purchasers of the owner's notification requirements. A maximum penalty of $10,000 can be given for not following these notification procedures.

REGULATORY PROGRAM

Under HSWA, EPA must develop and promulgate regulations that specify performance standards for new underground storage tanks, as well as regulations covering leak detection, leak prevention, and corrective action for both new and existing tanks. There are two schedules for developing these regulations, one for tanks containing petroleum and the other for tanks holding hazardous substances (see Figure IV.1).

	Petroleum Products	**Hazardous Substances**
Standards for new tanks	February 1987	August 1987
Regulation covering leak detection/prevention and corrective action	February 1987	August 1988

Figure IV.1

Deadlines for New Tank Standards and Regulations Covering Leak Detection, Prevention and Corrective Action

The law specifies that the leak detection/prevention and corrective action regulations must require owners/operators of underground storage tanks to:

- Have methods for detecting releases
- Keep records of the methods
- Take corrective action when leaks occur
- Report leaks and corrective actions taken
- Provide for proper closure of tanks
- Provide evidence, as EPA deems necessary, of financial responsibility for taking corrective action and compensating third parties for injury or damages from sudden or non-sudden releases (States may finance corrective action and compensation programs by a fee on tank owners and operators).

The requirements for cleaning up tanks through corrective action are expected to be one of the most significant costs imposed by the new law.

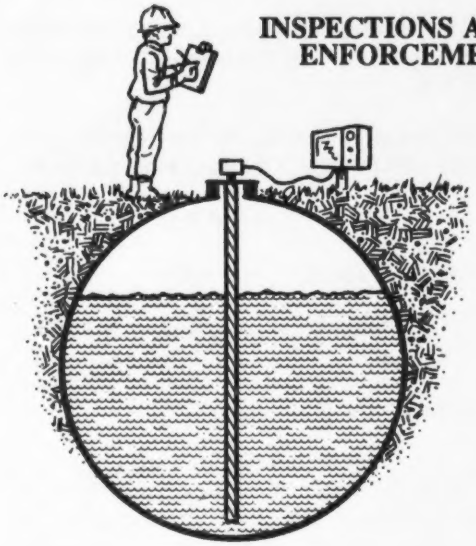
In addition to developing regulations, the law requires EPA to conduct three studies according to the folowing schedule:

Study	Due By
• Tanks containing petroleum products	Nov. 1985
• Tanks containing Superfund hazardous wastes	Nov. 1987
• Farm and heating oil tanks	Nov. 1987

The purpose of the first two studies is to assess the age, type, and location of such tanks, the relationship between these factors and the likelihood of leakage. In addition, they will examine the effectiveness and cost of inventory systems, tank testing, and leak detection sytems, and other factors which the Administrator deems appropriate. The last study shall include estimates of the number and location of such tanks, and an analysis of the extent to which they may be leaking. The results from this study will be used to determine whether farm tanks holding less than or equal to 1,100 gallons and/or heating oil tanks should be subject to Subtitle I regulation.

STATE AUTHORIZATION

Several States already have or are developing regulatory programs for underground storage tanks. The new law is designed to avoid interfering with those State programs and to encourage other States to press ahead with control programs. Avoiding interference is why the notifications discussed earlier will be received directly by States and local agencies. However, States must still apply to EPA for authorization (beginning in May 1987) to operate an UST program. The law gives States a choice in selecting whether their program will cover petroleum or hazardous substance tanks, or both. State programs must include all the regulatory elements of the Federal program and provide for adequate enforcement. After a 1- to 3-year grace period, State requirements must be no less stringent than Federal requirements.



INSPECTIONS AND ENFORCEMENT

HSWA provides authority for Federal and State personnel to:

- Request pertinent information from tank owners
- Inspect and sample tanks
- Monitor and test tanks and surrounding soils, air, surface water, and ground water.

Federal enforcement is also included in the new law. EPA may issue compliance orders for any violation of the UST statute or regulations. If the violator fails to comply with the order he may be subject to a civil penalty of up to $25,000 per day of non-compliance. In addition, any owner who knowingly fails to notify or submits false information, or any owner or operator who fails to comply with any regulatory requirement under Subtitle I may be subject to civil penalties of up to $10,000. Criminal penalties are not authorized under Subtitle I.

SUMMARY

HSWA created an entirely new RCRA program, under Subtitle I, that regulates underground tanks storing petroleum products and any substance defined as hazardous under Superfund. Underground tanks storing hazardous waste as defined by RCRA are regulated under Subtitle C.

The underground storage tank program has five parts:

- Ban on unprotected new tanks
- Notification program
- Regulatory program (the development of standards for tanks, and regulations concerning leak detection/ prevention and corrective action)
- State authorization to carry out the Subtitle I program
- Inspections and enforcement.

Because the Subtitle I program is so new, very few of the regulations pertaining to it have been developed.

APPENDIX A

UNIFORM HAZARDOUS WASTE MANIFEST

Please print or type. *(Form designed for use on elite (12-pitch) typewriter.)* *Form Approved. OMB No. 2000-0404. Expires 7-31-86*

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. Manifest Document No.

2. Page 1 of

Information in the shaded areas is not required by Federal law.

GENERATOR

3. Generator's Name and Mailing Address

A. State Manifest Document Number

B. State Generator's ID

4. Generator's Phone ( )

5. Transporter 1 Company Name

6. US EPA ID Number

C. State Transporter's ID

D. Transporter's Phone

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address

10. US EPA ID Number

G. State Facility's ID

H. Facility's Phone

11. US DOT Description *(Including Proper Shipping Name, Hazard Class, and ID Number)*	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.					
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above

K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

Unless I am a small quantity generator who has been exempted by statute or regulation from the duty to make a waste minimization certification under Section 3002(b) of RCRA, I also certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and I have selected the method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment.

Printed/Typed Name	Signature	Month Day Year

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month Day Year

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month Day Year

EPA Form 8700-22 (Rev. 4-85) Previous edition is obsolete.

APPENDIX B

OTHER SOURCES OF INFORMATION

Very little RCRA orientation information currently exists. Some sources of information that may be useful are listed below:

The New RCRA Hazardous and Solid Waste Amendments of 1984 --

A slide presentation describing the new RCRA program. It was produced by EPA's Office of Solid Waste and is available for purchase from:

National Audio-Visual Center
National Archives and Records Administration
Customer Services Section NR
8700 Edgeworth Drive
Capitol Heights, MD 20743-3701

Attack on Hazardous Waste --

A slide presentation covering the hazardous waste program of 1980. It was produced by EPA's Office of Solid Waste in 1980 (revised 1983) and is available for purchase from the National Audio-Visual Center (address above).

Hazardous and Solid Waste Amendments --

A videotape produced by EPA technical experts that explains the Hazardous and Solid Waste Amendments of 1984. It is available for purchase from the National Audio-Visual Center (address above).

Hazardous Waste Management Institute Manual --

This manual is the textbook for a model curriculum on hazardous waste technology (November, 1985). It is edited by Jey K. Jeyapalan and Daniel R. Viste and published by:

The Wisconsin Hazardous Waste Management Center
The University of Wisconsin - Madison
2304 Engineering Building
1415 Johnson Drive
Madison, WI 53706

Federal Regulation of Hazardous Wastes: A Guide to RCRA --

This book is written by John Quarles and published by the Environmental Law Institute (October, 1982). It provides an overview of Subtitle C of RCRA, outlining the regulations and their impact on the regulated community. The book is for sale from:

Hazardous Waste Report
P.O. Box 3645
Harrisburg PA 17105

RCRA/Superfund Hotline --

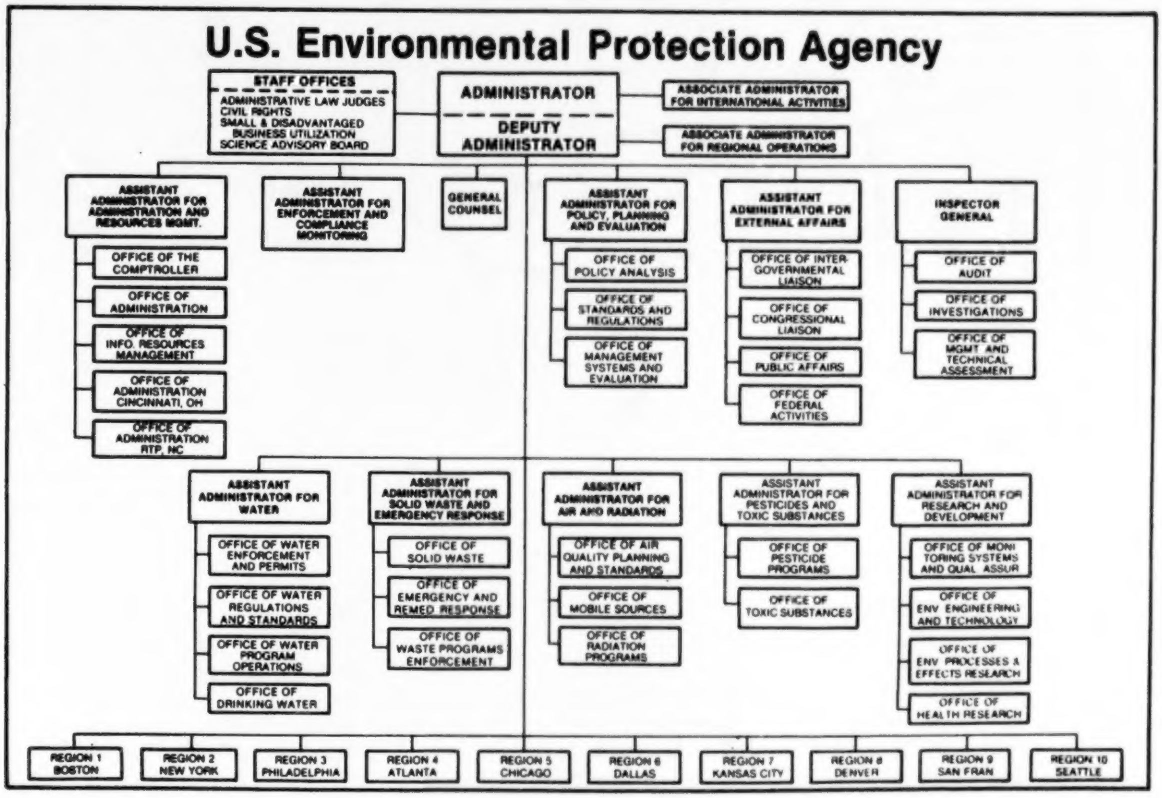
A telephone call-in service set up by EPA's Office of Solid Waste and Emergency Response to answer any questions regarding RCRA and Superfund. The phone number is 202-382-3000 (in Washington D.C.) or toll free -- 800-424-9346 (outside of the District).

APPENDIX C

EPA ORGANIZATION

APPENDIX C -- EPA ORGANIZATION

HEADQUARTERS AND REGIONAL ORGANIZATION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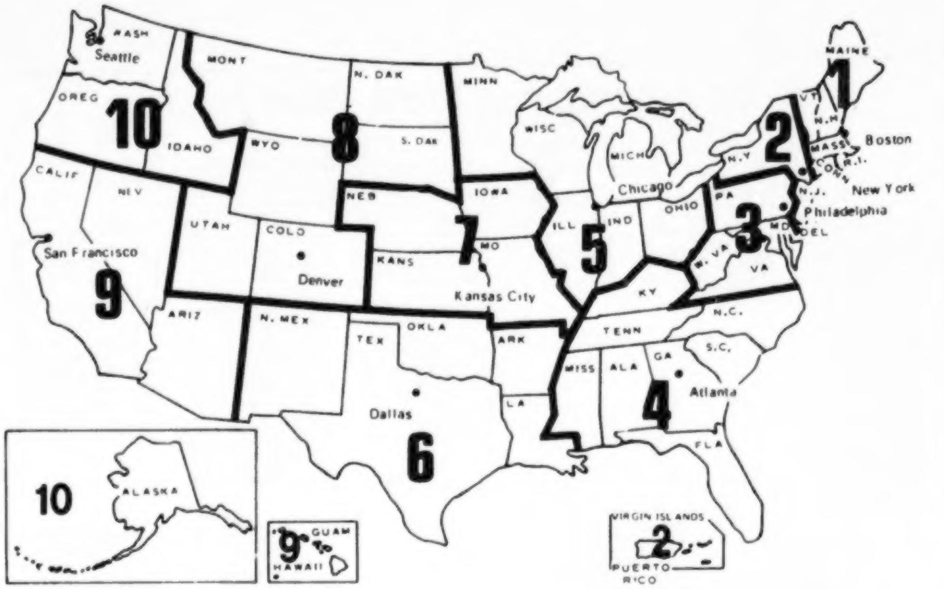
REGIONAL OFFICES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REGIONAL ADDRESSES AND TELEPHONE NUMBERS

REGION 1 ------- John F. Kennedy Federal Building -- Room 2203
Boston, MA 02203
FTS -- 8-223-7210 DDD -- (617) 223-7210

REGION 2 ------- 26 Federal Plaza -- Room 900
New York, NY 10278
FTS -- 8-264-2525 DDD -- (212) 264-2525

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Philadelphia, PA 19107
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999 18th Street
Denver, CO 80202-2413
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FTS -- 8-454-8153 DDD -- (415) 974-8153

REGION 10 ------ 1200 Sixth Avenue
Seattle, WA 98101
FTS -- 8-399-5810 DDD -- (206) 442-5810

GLOSSARY

GLOSSARY

Administrator -- The Administrator of the United States Environmental Protection Agency, or his designee.

Administrative Action-- A non-judicial enforcement action taken by the Administrator (or his designee) or a State.

Administrative Order-- An order issued by the Administrator (or his designee) to a violator of RCRA provisions that imposes enforceable legal duties, e.g., forcing a facility to comply with specific regulations. There are four types of RCRA orders: Compliance orders; Corrective Action orders; Monitoring and Analysis orders and Imminent Hazard orders.

Administrative Procedures Act -- Administrative Procedure Act (APA) is a Federal statute that provides minimum standards so that the public is informed about the actions of Federal agencies; and that their interests are properly protected.

Biennial Report -- A report (EPA Form 8700-13A) submitted by generators of hazardous waste to the Regional Administrator due March 1 of each even-numbered year. The report includes information on the generator's activities during the previous calendar year. The owner or operator of a treatment, storage, and disposal facility must also prepare and submit a biennial report using EPA Form 8700-1313 .

California Wastes -- A group of liquid hazardous wastes, including ones with PCB's, heavy metals, and halogenated organic compounds that EPA must evaluate by July 8, 1987, to determine if they should be banned from land disposal or if restrictions should be placed on the land disposal of these wastes. See HSWA Section 201(d)(2).

CERCLA -- The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), passed in 1980 and commonly known as "Superfund". CERCLA gives the Federal government the power to respond to releases, or threatened releases, of any hazardous substance into the environment as well as to a release of a pollutant or contaminant that may present an imminent and substantial danger to public health or welfare. CERCLA established a Hazardous Substance Trust Fund (Superfund), available to finance responses taken by the Federal Government.

CFR -- The Code of Federal Regulations, a document containing all finalized regulations.

Characteristics -- EPA has identified four characterisitics of a hazardous waste: Ignitability; Corrosivity; Reactivity; and EP Toxicity. Any solid waste that exhibits one or more of these characteristics is classified as a hazardous waste under RCRA.

Civil Action -- A law suit filed in court against a person who has either failed to comply with statutory or regulatory requirements or an administrative order or has contributed to a release of hazardous wastes or constituents. There are four types of civil actions: Compliance; Corrective; Monitoring and Analysis; and Imminent Hazard.

Compliance Order/ Action -- An order or action issued under Section 3008 (a) of RCRA, requires any person who is not complying with a requirement of RCRA to take steps to come into compliance.

Container -- Any portable device in which material is stored, transported, treated, disposed of, or otherwise handled.

Contingency Plan -- A document setting out an organized, planned, and coordinated course of action to be followed in case of a fire or explosion or a release of hazardous waste or hazardous waste constituents from a treatment, storage, or disposal facility that could threaten human health or the environment.

Corrective Action/ Order -- An order EPA issues that requires corrective action under RCRA Section 3008(h) at a facility when there has been a release of hazardous waste or constituents into the environment. Corrective action may be required beyond the facility boundary and can be required regardless of when the waste was placed at the facility.

Criminal Action -- A prosecutorial action taken by the United States Government or a State towards any person(s) who has knowingly and willfully not complied with the law. Such an action can result in the imposition of fines or imprisonment.

Designated Facility -- A hazardous waste treatment, storage, or disposal facility which has received an EPA, or state, permit (or has interim status) and has been designated on the manifest by the generator as the facility to which the generator's waste should be delivered.

Discharge or Hazardous Waste Discharge -- The accidental or intentional spilling, leaking, pumping, pouring, emitting, emptying, or dumping of hazardous waste onto any land or water.

Disposal -- The discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste or hazardous waste into or on any land or water so that any constituent thereof may enter the environment or be emmitted into the air or discharged into any waters, including ground waters.

Disposal Facility -- A facility or part of a facility at which hazardous waste is intentionally placed into or on any land or water, and at which waste will remain after closure.

EPA Identification Number -- The unique number assigned by EPA to each generator or transporter of hazardous waste, and each treatment, storage, or disposal facility.

EP Toxicity -- A test, called the extraction procedure, that is designed to identify wastes likely to leach hazardous concentrations of particular toxic constituents into the ground water as a result of improper management. It is a characteristic of hazardous waste.

Exception Report -- A report that generators who transport waste off-site must submit to the Regional Administrator if they do not receive a copy of the manifest signed and dated by the owner or operator of the designated facility to which their waste was shipped within 45 days from the date on which the initial transporter accepted the waste.

Existing Facility -- A facility which was in operation or for which construction commenced on or before November 19, 1980.

Facility -- All contiguous land, structures, other appurtenances, and improvements on the land, used for treating, storing, or disposing of hazardous waste. A facility may consist of several treatment, storage, or disposal operational units, e.g., one or more landfills, surface impoundments, or a combination of them.

Federal Register -- A document published daily by the Federal government that contains either proposed or final regulations.

Food-Chain Crops -- Tobacco, crops grown for human consumption, and crops grown to feed animals whose products are consumed by humans.

Freeboard -- The vertical distance between the top of a tank or surface impoundment dike, and the surface of the waste contained therein.

Generator -- Any person who first creates a hazardous waste, or any person who first makes the waste subject to the Subtitle C regulation (e.g., imports a hazardous waste, initiates a shipment of a hazardous waste from a TSD, or mixes hazardous wastes of different DOT shipping descriptions by placing them into a single container).

Ground Water -- Water below the land surface in a zone of saturation.

Guidance -- Documents issued primarily to elaborate and provide direction on the implementation of regulations.

Hammer Provision -- Statutory requirements that go into effect automatically if EPA fails to issue reglations by certain dates specified in the statute.

Hazardous Waste -- As defined in RCRA the term "hazardous waste" means a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may -

A) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or

B) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed.

As defined in the regulations, a solid waste is hazardous if it meets one of four conditions:

1) Exhibits a characteristic of a hazardous waste (40 CFR Sections 261.20 through 262.24)

2) Has been listed as hazardous (40 CFR Sections 261.31 through 261.33)

3) Is a mixture containing a listed hazardous waste and a non-hazardous solid waste (unless the mixture is specifically excluded or no longer exhibits any of the characteristics of hazardous waste)

4) Is not excluded from regulation as a hazardous waste.

HSWA -- The Hazardous and Solid Waste Amendments of 1984 (Public Law 98-616) that significantly expanded both the scope and the coverage of RCRA.

Imminent Hazard Order -- Used by the responsible agency under the authority of RCRA Section 7003 to force any person contributing to an imminent and substantial endangerment to human health or the environment caused by the handling of non-hazardous or hazardous solid waste to take steps to clean up the problem.

Incinerator -- Any enclosed device using controlled flame combustion that neither meets the criteria for classification as a boiler or is listed as an industrial furnace.

Inner Liner -- A continuous layer of material placed inside a tank or container which protects the construction materials of the tank or container from the contained waste or reagents used to treat the wastes.

Interim Status -- Allows owners and operators of TSDs that were in existence, or for which construction had commenced, prior to November 19, 1980 to continue to operate without a permit after this date. Owners and operators of TSDs are eligible for interim status on an ongoing basis if the TSD is in existence on the effective date of regulatory changes under RCRA that cause the facility to be subject to Subtitle C regulation. Owners and operators in interim status are subject to and must comply with the applicable standards in 40 CFR Part 265. Interim status is gained through the notification process and by submitting Part A of the permit application.

Interstate Agency -- An agency or two or more municipalities in different States, or an agency established by two or more States, with the authority to provide for the management of solid wastes, and serving two or more municipalities located in different States.

Landfill -- A disposal facility or part of a facility where hazardous waste is placed in or on land and which is not a land treatment facility, a surface impoundment, or an injection well.

Land Treatment -- A facility or part of a facility at which hazardous waste is applied onto or incorporated into the soil surface. Such facilities are disposal facilities if the waste remains after closure.

Leachate -- Any liquid, including any suspended components in the liquid, that has percolated through or drained from hazardous waste.

Liner -- A continuous layer of natural or man-made materials, beneath or on the sides of a surface impoundment, landfill, or landfill cell, which restricts the downward or lateral escape of hazardous waste, hazardous waste constituents, or leachate.

Listed -- Hazardous wastes that have been placed on one of three lists developed by EPA: Non-specific source wastes; Specific source wastes; Commercial chemical products. These lists were developed by examining different types of waste and chemical products to see if they exhibit one of the four characteristics, meet the statutory definition of hazardous waste, are acutely toxic or acutely hazardous, or are otherwise toxic.

Manifest -- The shipping document, EPA form 8700-22, used for identifying the quantity, composition, origin, routing, and destination of hazardous waste during its transportation from the point of generation to the point of treatment, storage, or disposal.

Metric Tonne	--	2,200 pounds.
Monitoring and Analysis Order	--	Used to evaluate the nature and extent of a substantial hazard to human health or the environment that exists at a TSD. It can be issued to either the current owner or to a past owner or operator if the facility is not currently in operation or the present owner could not be expected to have actual knowledge of the potential release.
New Facility	--	A TSD which began operation or for which construction commenced after November 19, 1980.
Off-site	--	The opposite of on-site (see next term).
On-site	--	Means on the same or geographically contiguous property which may be divided by public or private right(s)-of-ways, provided the entrance and exit between the properties is at a cross-roads, intersection, and access is by crossing as opposed to going along the right(s)-of-way. Non-contiguous properties owned by the same person but connected by a right-of-way which the person controls and to which the public does not have access, is also considered on-site property.
Open Dump	--	Specifically, any facility or site where solid waste is disposed of which is not a sanitary landfill which meets the Criteria listed in 40 CFR Part 257 ("Subtitle D Criteria") and which is not a facility for the disposal of hazardous waste.
Operator	--	The person responsible for the overall operation of a facility.
Owner	--	The person who owns a facility or part of a facility.
Part A	--	The first part of the two part application that must be submitted by a TSD facility to receive a permit. It contains general facility information. There is a standard form for the Part A.
Part B	--	The second part of the permit application that includes detailed and highly technical information concerning the TSD in question. There is no standard form for the Part B, instead the facility must submit information based on the regulatory requirements.
Partial Closure	--	The closure of a discrete part of a facility in accordance with the applicable closure requirements of 40 CFR Parts 264 or 265. For example, partial closure may include the closure of a trench, a unit operation, a landfill cell, or a pit, while other parts of the same facility continue in operation or will be placed in operation in the future. A proposed redefinition was published in the March 19, 1985, Federal Register (50 FR 11068).

Permit	--	An authorization, license, or equivalent control document issued by EPA or an authorized State to implement the regulatory requirements of Subtitle C Parts 264 and 265 for TSDs.
Permit-By-Rule	--	A provision of Subtitle C whereby a facility is deemed to have a RCRA permit if it is permitted under the Safe Drinking Water Act, the Clean Water Act, or the Marine Protection, Research, and Sanctuaries Act and also meets a few additional Subtitle C requirements as specified at 40 CFR Section 270.60.
Person	--	An individual, trust, firm, joint stock company, corporation (including a government corporation), partnership, association, State, municipality, commission, political subdivision of a State, or any interstate body.
Point Source	--	Any discernible, confined, and discrete conveyance, including, but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture.
Policy	--	A document that specifies operating policies that must be followed. They are used by program offices to outline the manner in which pieces of the RCRA program are to be carried out.
RCRA	--	Resource Conservation and Recovery Act of 1976. What we commonly refer to as RCRA is an amendment to the first piece of Federal solid waste called the Solid Waste Disposal Act of 1965. RCRA was amended in 1980 and most recently on November 8, 1984 by HSWA.
Regional Administrator	--	The highest ranking official in each of the ten EPA regions.
Regulation	--	The legal mechanism that spells out how a statute's broad policy directives are to be carried out. Regulations are published in the Federal Register and then codified in the Code of Federal Regulations.
Representative Sample	--	A sample of a universe or whole (e.g., waste pile, lagoon, ground water, or waste stream) which can be expected to exhibit the average properties of the universe or whole.
Resource Conservation	--	Reduction of the amounts of solid waste that are generated, reduction of overall resource consumption, and utilization of recovered resources.
Resource Recovery	--	The recovery of materials or energy from waste.

Site	--	The land or water area where any facility or activity is physically located or conducted, including adjacent land used in connection with the facility or activity.
Sludge	--	Any solid, semi-solid, or liquid waste generated from a municipal, commercial, or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility exclusive of the treated effluent from a wastewater treatment plant.
Small Quantity Generator	--	A generator who produces less than 1000 kg of hazardous waste per month (or accumulates less than 1000 kg at any one time) or one who produces less than 1 kg of acutely hazardous waste per month (or accumulates less than 1 kg of acutely hazardous waste at any one time). The threshold will reduce to 100 kg per month of hazardous waste on March 31, 1986.
Solid Waste	--	As defined in RCRA the term "solid waste" means any garbage, refuse, sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities, but does not include solid or dissolved material in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges which are point sources subject to permits under the Clean Water Act, or special nuclear or byproduct material as defined by the Atomic Energy Act of 1954.
Solid Waste Disposal Act of 1965	--	See "RCRA."
State	--	Any of the 50 States, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands.
Statute	--	The law as passed by Congress and signed by the President.
Storage	--	The holding of hazardous waste for a temporary period, at the end of which the hazardous waste is treated, disposed of, or stored elsewhere.
Superfund	--	See "CERCLA."
Surface Impoundment	--	A facility or part of a facility which is a natural topographic depression, man-made excavation, or diked area formed primarily of earthen materials (although it may be lined with man-made materials), which is designed to hold an accumulation of liquid wastes or wastes containing free liquids, and which is not an injection well. Examples of surface

impoundments are holding, storage, settling, and aeration pits, ponds and lagoons.

Tank	--	A stationary device, designed to contain an accumulation of hazardous waste, which is constructed primarily of non-earthen materials (e.g., wood, concrete, steel, plastic) that provide structural support.
The Act	--	An acronym for the Resource Conservation and Recovery Act.
Thermal Treatment	--	The treatment of hazardous waste in a device which uses elevated temperatures as the primary means to change the chemical, physical, or biological character or composition of the hazardous waste. Incineration is an example of thermal treatment.
Totally Enclosed Treatment Facility	--	A facility for the treatment of hazardous waste which is directly connected to an industrial production process and which is constructed and operated in a manner which prevents the release of any hazardous waste or any constituent thereof into the environment during treatment. An example is a pipe in which waste acid is neutralized.
Transfer Facility	--	Any transportation related facility including loading docks, parking areas, storage areas and other similar areas where shipments of hazardous waste are held during the normal course of transportation.
Transporter	--	Any person engaged in the off-site transportation of hazardous waste within the United States, by air, rail, highway, or water, if such transportation requires a manifest under 40 CFR Part 262.
Treatment	--	Any method, technique or process, including neutralization, designed to change the physical, chemical, or biological character or composition of any hazardous waste so as to neutralize it, or render it non-hazardous or less hazardous, or to recover it, make it safer to transport, store or dispose of, or amenable for recovery, storage, or volume reduction.
TSD	--	Acronym for treatment, storage, or disposal facility.
Vector	--	A carrier, usually an insect, which is capable of transmitting disease from one organism to another.

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